# UK UNIVERSITY OF KENTUCKY BULLETIN




# 1995 - 1996

## HOW TO USE THIS BULLETIN

The information in this bulletin is current at the time of publication. If you are pursuing a degree, you are obligated to fulfill the requirements as they are listed in the bulletin for the semester in which you enroll in that program.

If the requirements change after you have enrolled in the program, you have the option of fulfilling either the old or new requirements. If you elect to fulfill the old requirements and find that necessary courses have been eliminated or substantially revised, you may substitute other courses with the approval of the dean of the college. If the revision is required by an external accreditation certification body, and this body submits a written statement to the University that the accreditation of a program or certification of its graduates is in jeopardy unless students fulfill the new requirements, the option of fulfilling the old requirements shall not apply.

If your study in the program or the University is interrupted for more than two semesters, your college dean will decide which program requirements must be fulfilled.

The University of Kentucky will provide each incoming freshman with one copy of the Bulletin. Additional copies may be purchased at either the University or Kennedy bookstores. Reference copies are distributed to all high school counselors in the Commonwealth of Kentucky. Information about the Community College System may be obtained by contacting the Community College System Office, University of Kentucky, Lexington, KY 40506-0056.

## OTHER INFORMATION

Specific information about different parts of the University may be obtained by directing inquiries to members of the administrative staff. The post office address is: University of Kentucky, Lexington, KY 40506. Telephone: (606) 257-9000.

General information, transcripts of credits: University Registrar

Admissions: Director of Admissions

Student Affairs: Vice Chancellor for Student Affairs

Living Accommodations: University Housing Office

A particular college and its programs: Dean of the College, Director of Admissions

Community Colleges: Chancellor for the Community College System

Graduate Work: Dean of The Graduate School

Student Financial Aid: Director of Student Financial Aid

Academic Scholarships: Dean for Undergraduate Studies

General publications about the University: Office of Public Relations

Placement services: University Career Center

Counseling and Testing: Director of Counseling and Testing Center

Extension, Evening-Weekend, and Correspondence Courses: Executive Director, University Extension

The University of Kentucky is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award undergraduate, graduate and professional degrees.

## COMPLIANCE WITH REGULATIONS

The University of Kentucky is committed to a policy of providing educational opportunities to all qualified students regardless of economic or social status, and will not discriminate on the basis of race, color, religion, sex, marital status, beliefs, age, national origin, sexual orientation, or physical or mental disability.

Compliance with Title IX of the Educational Amendments of 1972, which prohibits sex discrimination, and with Title VI of the Civil Rights Act of 1964 is coordinated by Mr. Terry Allen, Affirmative Action Office, 8 Administration Building, (606) 257-8927.

Efforts to comply with the laws and regulations applicable to people with disabilities are also coordinated by the Affirmative Action Office, as required by Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990.

Questions concerning compliance with regulations may be directed to UK's Affirmative Action Office, or to the Director of the Office of Civil Rights, U.S. Department of Education, Washington, D.C.

The University is in compliance with the Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendment of 1989. Questions may be directed to the Vice Chancellor for Student Affairs or the Human Resource Services Director's Office.

Questions about admission to the University should be directed to the appropriate admissions office.

Volume 87 Issue 1

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UK

# UNIVERSITY OF KENTUCKY

# 1995-96

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Lexington, Kentucky 40506

# BULLETIN

## CONFIDENTIALITY OF STUDENT RECORDS

In accordance with the Family Education Rights and Privacy Act of 1974, University of Kentucky students have the right to review, inspect, and challenge the accuracy of information kept in a cumulative file by the institution unless the student waives this right in writing. Records cannot be released in other than emergency situations without the written consent of the student, except in the following situations:

A. to other school officials, including faculty within the educational institution or local educational agency who have legitimate educational interests;

B. to officials of other schools or school systems in which the student intends to enroll, upon condition that the student be notified of the transfer, receive a copy of the record if desired, and have an opportunity for a hearing to challenge the content of the record;

C. to authorized representatives of 1) the Comptroller General of the United States, 2) the Secretary of Education of the United States, 3) an administrative head of an education agency or 4) state educational authorities;

D. in connection with a student's application for, and receipt of, financial aid;

E. where the information is classified as "Directory information." The following categories of information have been designated by the University as directory information: name, address, telephone listing, date and place of birth, enrollment classification, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational institution attended by the student. Students who do not wish such information released without their consent should notify the Registrar's Office in writing.

Questions concerning this law and the University's policy concerning release of academic information may be directed to the Registrar's Office, 257-8729.

## ANNUAL DISCLOSURE STATEMENT

### Student Right-to-Know Act (P.L. 101-542)

### University of Kentucky
### 1995-96

Section 103 of the Student Right-to-Know and Campus Security Act of 1990 (Public Law 101-542) as amended by the Higher Education Technical Amendments of 1991 (Public Law 102-26) requires public disclosure of relevant graduation rate information for students enrolled in colleges and universities receiving federal financial assistance annually beginning July 1, 1993. The following statement is the University of Kentucky's official disclosure statement in accordance with the requirements of P.L. 101-542 Section 103 for the 1995-96 academic year.

### Graduation Rate of Entering Freshmen

The graduation rate for all students entering the University of Kentucky as first-time freshmen during the 1988-89 academic year* was **52 percent.** This graduation rate represents the percentage of students entering the University of Kentucky as first-time (i.e., new) full-time degree-seeking freshmen during the 1988 Summer and Fall terms who subsequently were awarded baccalaureate degrees by the University of Kentucky within **six** calendar years (i.e., through August 1994). This rate was calculated under definitions and procedures established by the National Collegiate Athletic Association (NCAA), and reported to the NCAA on the University's 1994 Graduation Rate Disclosure Form in March 1995.

Final regulations and guidelines for the calculation, reporting, and disclosure of graduation rate information required under the Student Right-to-Know Act have not yet been issued by the Department of Education. Definitions of the entering student cohort in the Department of Education's **proposed** regulations (*Federal Register*, July 10, 1992) and the NCAA Graduation Rate Disclosure Form differ slightly. However, the University has determined that the graduation rate information in the annual NCAA report is substantially comparable to the information required under the Student Right-to-Know Act, and is reporting that information at this time pending release of final federal regulations.

May 1995

* The information to be disclosed by July 1 of each year is "the graduation rate for the most recent cohort of entering students that all have had an opportunity to complete or graduate from their respective programs" in the specified completion period (which for the University of Kentucky is six years). The most recent entering cohort meeting this requirement is the 1988-89 freshman class.

# Abbreviated Academic Calendar

**NOTE:** This is an abbreviated calendar containing general dates. The complete and official University of Kentucky Academic Calendar for the 1995 Fall Semester, 1996 Spring Semester, and 1996 Four-Week and Eight-Week Summer Sessions, as well as the calendars for the Colleges of Law, Medicine and Dentistry, begins on page 304.

## General Application Deadlines

| | |
|---|---|
| **Fall Semester** | **June 1**, for Summer Advising Conferences<br>**August 1**, for August Registration |
| **Spring Semester** | **October 15**, for November Advising Conference<br>**December 1**, for January Registration |
| **Four-Week Intersession** | **April 15**, for May Registration |
| **Eight-Week Summer Session** | **May 15**, for June Registration |

Applicants should be aware that certain colleges and some programs within colleges have application deadlines and requirements which differ from those for general University admission. Applicants should refer to the chart on page 11 of this Bulletin for information on selective admissions colleges and programs.

## FALL 1995

| | |
|---|---|
| August 2 | Last day to pay $50 Registration Fee to confirm Fall Semester registration |
| August 15-21* | Registration for new graduate students |
| August 17-19* | Registration for Evening/Weekend students |
| August 19-21 | Fall Orientation for all new undergraduate students |
| August 21 | Registration for Fall Semester for new students |
| August 21-25 | Approved time period for students to change academic majors |
| August 22 | First day of add/drop for Fall Semester |
| August 22 | Last day to drop a course or cancel registration with the University Registrar for a full refund of fees |
| **August 23** | **Class work begins for Fall Semester** |
| Aug. 23-29 | Late registration for returning students and new applicants |
| September 4 | Labor Day - Academic Holiday |
| August 29 | Last day to enter an organized class |
| August 29 | Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund |
| September 6 | Last day for payment of registration fees and/or housing and dining fees |
| September 13 | Last day to drop a course without it appearing on the student's transcript |
| **October 16** | **Midterm of Fall Semester** |
| October 20 | Last day to withdraw from a course or the University and receive any refund |
| October 17-30 | Approved time period for students to change academic majors |
| **Oct. 30-Nov. 17*** | **Priority Registration for continuing students for the Spring Semester** |
| Nov. 23-25 | Thanksgiving Holidays - Academic Holidays |
| December 6 | Last day to pay $50 Registration fee to confirm Spring Semester registration |
| December 8 | End of class work for 1995 Fall Semester |
| Dec. 11-15 | Final Examinations |

## SPRING 1996

| | |
|---|---|
| January 2-8* | Registration for new graduate students |
| January 5-6* | Registration for Evening/Weekend students |
| January 8 | Registration for Spring Semester for new students |
| January 8-12 | Approved time period for students to change academic majors |
| January 9 | First day of add/drop for Spring Semester |
| January 9 | Last day to drop a course or cancel registration for a full refund of fees |
| **January 10** | **Class work begins for Spring Semester** |
| January 10-19 | Late registration for Spring Semester |
| January 15 | Martin Luther King Birthday - Academic Holiday |
| January 17 | Last day to enter an organized class. |
| January 17 | Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund |
| January 24 | Last day for payment of registration fees and/or housing and dining fees |
| January 31 | Last day to drop a course without it appearing on the student's transcript |
| February 15 | Priority deadline for Freshman applicants for the 1996 Fall Semester |
| **March 4** | **Midterm of Spring Semester** |
| March 8 | Last day to withdraw from a course or from the University and receive any refund. |
| March 5-25 | Approved time period for students to change academic majors |
| **March 11-16** | **Spring Vacation - Academic Holidays** |
| **March 25-April 12*** | **Priority Registration for the 1996 Fall Semester and both 1996 Summer Sessions** |
| **April 26** | **End of class work for 1996 Spring Semester** |
| **April 29-May 3** | **Final Examinations** |
| May 5 | Sunday - Commencement Day |

## 1996 FOUR-WEEK INTERSESSION

| | |
|---|---|
| May 6 | Registration for Four-Week Intersession for new students |
| **May 7** | **Class work begins for Four-Week Intersession** |
| May 7 | Last day to drop a course or cancel registration with the University Registrar for a full refund of fees |
| May 7-10 | Late registration for returning students and new applicants |
| May 10 | Last day to enter an organized class for the Four-Week Intersession |
| May 10 | Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund |
| May 13 | Last day to drop a course without it appearing on the student's transcript |
| May 20 | Last day to pay registration fees and/or housing and dining fees. |
| May 21 | Last day to withdraw from a course or from the University and receive any refund. |
| May 27 | Memorial Day - Academic Holiday |
| **June 4** | **Final Examinations** |
| **June 4** | **End of the 1996 Four-Week Intersession** |

## 1996 EIGHT-WEEK SUMMER SESSION

| | |
|---|---|
| **June 6** | **Class work begins for Eight-Week Summer Session** |
| June 6 | Last day to drop a course or cancel registration with the University Registrar for a full refund of fees |
| July 31 | Last day to pay $50 Registration fee to confirm 1996 Fall Semester registration |
| **August 1** | **Final examinations** |
| **August 1** | **End of the 1996 Eight-Week Summer Session** |

*Telephone Registration may affect these dates; the correct dates are not known at this time.

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# THE UNIVERSITY

### History

The University of Kentucky was founded in 1865 as a land-grant institution. Policy for the operation of the University is set by a 20-member Board of Trustees, which includes alumni, faculty and student representation. Charles T. Wethington, Jr. is UK's tenth president.

### The Campus

UK's 673-acre campus is located just south of downtown Lexington in the heart of the beautiful Kentucky Bluegrass region.

### UK Educates 39 Percent of All College Students in Kentucky

Enrollment at UK in Lexington is more that 24,000. Another 46,000 students at the 14 community colleges in Kentucky means that UK is now educating 39 percent of all students going to public and private colleges and universities in the state.

### Graduate School Enrollment Reaches Record High

Fifty-two hundred students, or 21 percent of the entire student body in Lexington, are enrolled in graduate school.

### Colleges, Majors Significant

There are 16 academic colleges and a graduate school in Lexington. They are: Arts and Sciences, Agriculture, Engineering, Business and Economics, Education, Human Environmental Sciences, Communication and Information Studies, Social Work, Architecture, Fine Arts, Law, Medicine, Dentistry, Nursing, Allied Health Professions, and Pharmacy. More than 100 majors are offered.

### Students Best Ever

The average ACT score for incoming freshmen is 24.9, more than four points above the national average. There are 82 National Merit Scholars in the freshman class, the most ever. There are also 135 Governor's Scholars, and 106 high school valedictorians in the freshman class.

### $100 Million in Extramural Funding

Testimony to the expertise of the faculty is that they now generate more than $100 million in grants, contracts and gifts in a highly competitive national arena. There are 1,678 full-time faculty in Lexington and another 1,130 in the community colleges.

### UK Named Research University I

The University is designated a Research University of the First Class by the Carnegie Foundation, one of only 59 public universities in the country and the only one in Kentucky. Just 2.4 percent of the 3,600 institutions of higher learning are so ranked.

### Private Support Tops $31 Million

Private giving to the University totaled 31.6 million a year in 1993-94, an 18 percent increase over the previous year.

### New Commonwealth Library: Number One Construction Priority

Construction of a new library at UK remains the number one priority among capital improvement projects. Alumni, employees, students and friends have contributed more than $21 million for the new library. The UK library system currently holds more than 2 million volumes.

### UK Rated High by Publications

The University of Kentucky is rated among the top colleges and universities in a number of recent publications. These include:

*Ivy League Programs at State School Prices*
*The Guide to 101 of the Best Values in America's Colleges and Universities*
*The Fiske Guide to Colleges*
*The Insider's Guide to Colleges*
*The 100 Best Colleges for African-American Students*
*The Multicultural Student's Guide to Colleges*

### Rankings Favor Specific Programs

- The colleges of Business and Economics, Law and Medicine are each included in The Princeton Review's editions.
- The College of Medicine is among the top ten comprehensive medical schools.
- The College of Business and Economics' MBA program was listed as one of the best buys in business education in the U.S. by *Business Week*.

### 3,700 Students at Medical Center

The Chandler Medical Center at UK includes a 473-bed hospital. More than 3,700 students are enrolled in its five colleges – medicine, dentistry, nursing, pharmacy, and allied health professions.

### Organizations Abound for Students

UK students have their choice of over 250 student organizations on the campus in Lexington.

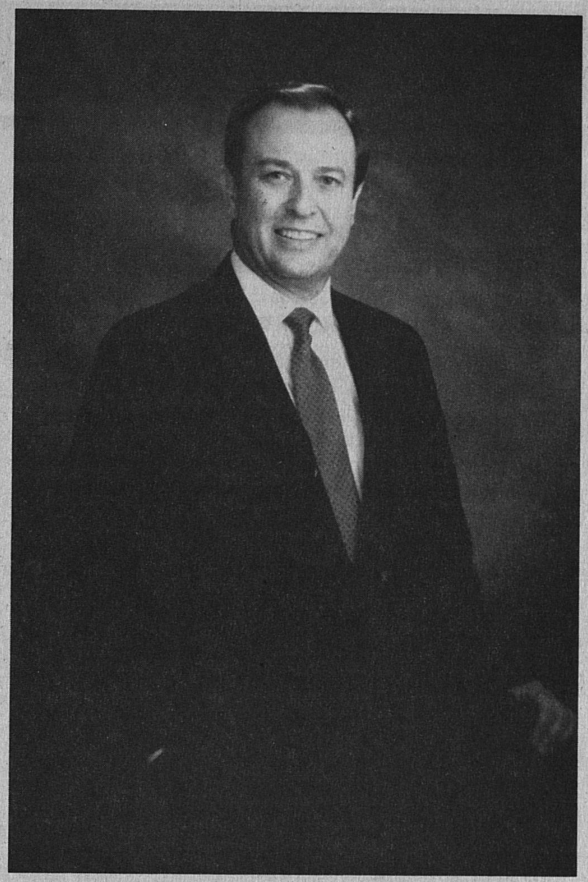
### Campus Life

More than 6,000 students live on campus in one of 18

residence halls and the Greg Page Apartments.

There are 25 fraternities at UK—with 18 of them providing housing for 500 students. Fraternity membership tops 1,500.

Seventeen sororities at UK have 1,500 members. Thirteen of them supply housing for 450 members.



Charles T. Wethington, Jr.

## Presidents of the University

*James K. Patterson, 1878-1910*

*Henry S. Barker, 1910-1917*

*Frank L. McVey, 1917-1940*

*Herman L. Donovan, 1941-1956*

*Frank G. Dickey, 1956-1963*

*John W. Oswald, 1963-1968*

*Albert D. Kirwan, 1968-1969*

*Otis A. Singletary, 1969-1987*

*David P. Roselle, 1987-1989*

*Charles T. Wethington, Jr., 1989-*

# UNDERGRADUATE ADMISSION

## ADMISSIONS PHILOSOPHY

The University of Kentucky is the only higher education institution with statewide responsibilities. UK is the Commonwealth's principal institution for comprehensive research and service programs. Thus, UK places special emphasis on upper division undergraduate, graduate, and professional education. The University seeks, then, to admit, enroll, and retain an academically well-qualified and diverse student body. The following admission policies reflect this policy.

## GENERAL INFORMATION

The Director of Admissions authorizes the admission of all undergraduate students to the University. Direct all admissions inquiries to:

**Office of Admissions**
**100 W. D. Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**
**(606) 257-2000**

All students at UK enroll in one of seventeen colleges. Each college is supervised by an academic dean and is usually made up of several academic departments that offer different major fields of study.

The general University admission requirements and procedures for freshmen and transfer students are outlined below. **All applicants should be aware that certain colleges and some programs within colleges have additional admission standards and criteria beyond those for general admission which differ from those for general University admission.** Refer to *Special Application Dates and Procedures* at the end of this section for information on deadlines and procedures for selective admissions colleges and programs. Detailed information on admission criteria is provided in the college sections of this Bulletin.

The University of Kentucky provides educational opportunities to all qualified students regardless of economic or social status. The University does not discriminate on the basis of race, color, religion, sex, marital status, beliefs, age, national origin, sexual orientation, or handicap.

## FRESHMAN ADMISSION TO THE UNIVERSITY

Admission for freshman applicants is based on: a) high school grades; b) national college admission test results; and c) successful completion of the required precollege curriculum. The Office of Admissions prefers the ACT Assessment, but applicants may submit Scholastic Assessment Test (SAT) scores.

**AUTOMATIC ADMISSION**—Students whose test scores (ACT Assessment or SAT) and high school grade-point averages predict successful academic performance and meet admission criteria established by the faculty are automatically admitted, subject to successful completion of the minimum precollege curriculum. Letters confirming admission are sent to students throughout the school year.

### Important Admissions Dates*

**February 15** Priority deadline for Freshman applicants. Applicants for the 1996 Fall semester who apply by this date and meet automatic admission criteria will be guaranteed general admission. Applicants who apply after this date, whether meeting automatic admission or delayed admission criteria, will be given consideration on a space-available basis only.

**June 1** Deadline for submission of application and all required documents to the Office of Admissions for Fall 1996 undergraduate applicants planning to attend Summer Advising Conferences (including registration for fall classes).

**August 1** Final deadline for submission of application and all required documents to the Office of Admissions for undergraduate admission for the 1996 Fall Semester.

**All applicants should be aware that some programs have application procedures and deadlines which differ from those for general University admission.** Applicants should refer to *Special Application Dates and Procedures* at the end of this section for information on deadlines and procedures for selective admissions colleges and programs.

*International students – see pages 9-10.

**DELAYED CONSIDERATION**—A very small portion of the freshman class may be selected from applicants who are not automatically admitted. Applicants are considered on a delayed basis, subject to successful completion of the minimum precollege requirements. The files of these applicants are reviewed during the spring.

An applicant who has a high school grade-point average which is less than 2.0 ("C" average) on a 4.0 scale will be automatically denied admission.

Keep in mind that admission decisions are based primarily on the probability for academic success, using high school grades and admission test scores together as predictors.

Scholarship student-athletes who do not meet standards for automatic admission may be admitted if they meet Southeastern Conference and National Collegiate Athletic Association academic eligibility requirements.

### Precollege Curriculum

Incoming freshmen should have the high school prepara-

tion necessary for academic success at the college level. To be eligible to be automatically admitted to UK under the admission policy outlined above, an applicant must have successfully completed the following high school courses as a minimum:

Biology I and Chemistry I or Physics I

English I, II, III, and IV

Algebra I, Geometry I, and Algebra II

U.S. History and World Civilization-World History

A total of 20 units or more must be completed in high school.

In addition, high school students are encouraged to complete at least two years of a foreign language, one year of mathematics beyond Algebra II and one year of fine arts.

Applicants should contact the Office of Admissions for information concerning exceptions to this policy.

### Selective Colleges and Programs

**Some colleges and programs within colleges at UK have admissions standards and criteria which are higher than those for general admission to UK. Also, some programs have deadlines and application procedures which differ from those for general University admission.** Refer to *Special Application Dates and Procedures* for information on procedures and deadlines for selective admissions programs. Detailed information on admission criteria is provided in the college sections of this Bulletin.

## APPLICATION PROCEDURES FOR FRESHMEN

All freshman applicants must submit the following to the Office of Admissions:

1. An application for admission;
2. A non-refundable application processing fee;
3. An official high school transcript; and
4. An official copy of either the American College Test (ACT Assessment) scores or the Scholastic Assessment Test (SAT) scores. "Official copy" means a report of the test scores that is sent **directly** to the Office of Admissions from the testing agency.

To be considered for priority date admission, freshman applicants should take the ACT Assessment (or SAT) by December of their senior year of high school. High school students are encouraged to take the test during their junior year and to take it at least twice. High school guidance counselors can provide students with registration forms, information about registration deadlines, test dates, and locations.

Refer to the University Calendar on page 302 for general University admission deadlines.

### High School Students with Exceptional Ability

Through UK's Exceptional Ability program, highly motivated students can enroll in classes at UK before they graduate from high school. Exceptional high school students can be admitted to UK after a thorough evaluation of their academic performance, admission test scores, and other criteria.

Students who wish to begin college work during the summer after their junior year in high school should take the ACT Assessment (or SAT) by March.

### High School Equivalency Certificates

The University considers admission from freshman applicants who are not high school graduates but who present a valid High School Equivalency Certificate and General Education Development test scores. Applicants must also take the ACT Assessment (or SAT) and have the results sent **directly** to the Office of Admissions from the testing agency.

## TRANSFER ADMISSION TO THE UNIVERSITY

### (Including Community College Transfers)

Students at other colleges or universities, including UK community colleges, are permitted to transfer to UK if they:

1. would have been automatically admitted to UK when they entered the first institution attended provided they have a cumulative grade-point average of 2.0 or better for all work attempted. Applicants must **also** have a cumulative grade-point average of 2.0 or better for all work attempted at the last institution attended, provided at least 12 credit hours (or the equivalent thereof) was attempted there.

   **or**

2. would not have been automatically admitted to UK but have completed 24 semester hours or more and achieved a cumulative grade-point average of 2.0 or better for all college and university work attempted. Applicants must **also** have a cumulative grade-point average of 2.0 or better for all work attempted at the last institution attended.

Please note that grade-point averages are computed by the Office of Admissions and reflect the grade and credit for each course attempted, regardless of the practice of the offering institution of waiving a low grade for a repeated course.

Refer to the University Calendar on page 302 for general University admission deadlines.

### Selective Colleges and Programs

**Some colleges and programs within colleges at UK have additional admissions standards and criteria beyond those for general admission to the University. Also, some programs have deadlines and application procedures that differ from those for general University admission.** Refer to *Special Application Dates and Procedures* at the end of this section for information on procedures and deadlines for selective admissions programs. Detailed information on admissions criteria is provided in the college sections of this Bulletin.

## APPLICATION PROCEDURES FOR TRANSFER STUDENTS

### (Including Community College Transfers)

Transfer applicants from other colleges and universities, including UK community colleges, should request an application packet from the Office of Admissions. Applicants must submit the following to the Office of Admissions:

1. An application for admission;
2. One official transcript from each college or university attended, containing a complete record of all courses completed at the time of application;
3. A roster of the courses in which the student is currently enrolled;
4. A final official transcript of any additional work completed before entering the University; and
5. A non-refundable application processing fee. (This fee is waived for UK Community College transfer students.)

Refer to *Special Application Dates and Procedures* at the

end of this section for admissions process information. **Candidates tentatively admitted at the time of application should be aware that the University will cancel the admission and/or the early registration of an applicant whose final official record, after completion of a current semester, shows ineligibility because of suspension, dismissal, or a drop in grade-point average below the required 2.0.**

Admitted students should bring a copy of the catalog of the last school attended when they attend their Advising Conference.

## TRANSFER OF CREDIT

### Credit Earned at UK Community Colleges

Grades, credits, quality points, and academic status from courses taken at a UK community college are transferred when the community college student enrolls at UK. The dean of the college that the student enrolls in determines how transfer course work is applied toward a UK degree.

### Credit Earned at Other Institutions

The University accepts collegiate-level degree credits earned at a fully accredited college or university. "Fully accredited" means that the institution is a member in good standing of one of the six regional academic accrediting associations. Transfer work from institutions outside the United States is evaluated on an individual basis from the official transcripts.

The Office of Admissions generally determines *what* transfer course work is accepted. Then, the dean of the college that the student enrolls in determines *how* that course work is applied toward a UK degree. When the student attends the Advising Conference, an adviser will explain how the transfer work has been applied. However, students may want to consult individual departments in advance, since this may help them select a program and familiarize them with the degree requirements.

Students who have taken nontransferable courses at other institutions may, after they enter UK, request an examination for credit in a University course in the same discipline.

Students can obtain advanced standing from an unaccredited college or university by special subject examinations.

**Students transferring directly from a junior college or two-year branch of a university may not transfer more than 67 semester hours of credit to the University of Kentucky.** Students transferring from a four-year college who have previously attended a two-year college will be limited to 67 semester hours of the two-year college work. The work from the four-year college will be evaluated separately.

Transfer applicants should note that regardless of the number of transfer hours the University may accept, all candidates for a bachelor's degree must complete 30 of the last 36 hours of their program at UK.

## OTHER CATEGORIES OF ADMISSION

### Candidates for Readmission

Former University students who have not been enrolled for one semester or more in good standing are eligible for readmission.

Applicants for readmission to the University must submit to the Office of Admissions:

1. An application for admission;
2. Official transcripts from all colleges and universities attended since enrolled at UK; and
3. A non-refundable application processing fee.

Former University students who have been enrolled elsewhere since attending UK must be in good standing at UK and be eligible as transfer students on the basis of their grade-point average at the institution most recently attended. Students must also be in good standing at the institution most recently attended.

Students under suspension from UK will not be accepted for admission, regardless of their status at another institution. Suspended students must be reinstated to the University by the dean of the college in which they will enroll, if the suspension is academic, or by the appropriate University official, if the suspension is nonacademic. Reinstated students must file an application for readmission by the stated deadline.

Readmission candidates should submit an application as early as possible. This allows the Office of Admissions adequate time to prepare the necessary forms for registration. Refer to the University Calendar on page 302 for general admission deadlines. Information on selective college and program deadlines and procedures appears at the end of this section.

### Nondegree Students

The goal of the University of Kentucky policy for nondegree students is to provide appropriate access to academic courses for students who would like to continue their education, but who do not wish to seek a degree. Although degree-seeking students should have top priority in terms of utilization of University resources, the University does wish to provide access to these resources on a space-available basis to non-degree seeking students. This policy will provide reasonable access to a broader range of students without unnecessarily limiting University resources for degree-seeking students.

Non-degree status affords an opportunity for individuals to pursue lifelong learning without the structure of degree-seeking status and is consistent with the educational mission of the University. Because these students have unique needs, they come under the administrative purview of the Dean of Undergraduate Studies.

Most non-degree students are considered "Lifelong Learners" and include the following groups: Donovan Scholars, students who have already earned degrees and non-traditional students who wish to begin their studies as non-degree students in order to be considered for degree-seeking status later. Other students eligible to enter the University in a non-degree status include visiting students from other colleges and universities, high school students of exceptional ability, and other students in special circumstances as determined by the Director of Admissions. (See information about visiting students and high school students with exceptional ability earlier in this section.)

#### Rules Governing Admission of Non-Degree Seeking Students

To be admitted as a non-degree student, an applicant must meet the following criteria:

1. The high school class of a non-degree applicant must have graduated at least two years prior to the applicant's anticipated semester of enrollment, unless the applicant will be on active military duty during his/her tenure as a non-degree student.
2. Applicants who have been denied admission as degree-seeking students may **not** in turn be admitted as non-degree seeking students.
3. Former University degree-seeking students generally will not be readmitted as non-degree students without having earned an undergraduate degree.

4. University students under academic or disciplinary suspension may not be admitted as non-degree students.
5. Students currently under suspension at other institutions may not be admitted as non-degree students at UK. Failure to disclose a current suspension may result in forfeiture of eligibility for future enrollment.
6. Students are strongly encouraged to submit transcripts of high school or prior college work at the time of admission in order to facilitate advising about appropriate course work.

**Rules Governing Enrollment of Non-Degree Seeking Students**

1. Non-degree students must meet course prerequisites or obtain the consent of the instructor to enroll in a course.
2. No one may continue to enroll as a non-degree student after earning 24 semester hours in this status without the special permission of the dean of the college in which the student is registered.
3. Credit earned as a non-degree student will be evaluated for applicability toward a degree by the dean of the college in which the student will be enrolled. Successful completion of course work as a non-degree student does not ensure admission as a degree-seeking student. No graduate or professional credit is awarded for courses taken while a student is enrolled as an undergraduate non-degree student.
4. No more than eight credit hours per semester may ordinarily be taken in any regular semester (fall or spring). Students with special circumstances must petition the dean of the college in which they will be enrolled for any exception to this policy.

**Procedures**

1. Evening-Weekend non-degree students may apply for admission until noon on the Saturday before classes begin each semester, although they are strongly encouraged to do so much earlier. It is preferable for Evening-Weekend students to submit applications no later than two weeks before the beginning of classes. This will provide students with maximum flexibility in making the decision to enter the University and allow sufficient time for advisers to provide appropriate and accurate advice to non-degree students and to ensure that course prerequisites have been met.
2. Non-degree students who wish to take day classes must meet regular admission deadlines for each term. They are encouraged to participate in academic advising each semester. Advisers will be assigned to these students.
3. All non-degree students who wish to continue after their first semester are expected to participate in advance registration for the following semester.

Nondegree students may change to degree-seeking status after meeting regular University and program admission criteria. Applicants who earned fewer than 24 semester credit hours at UK must meet the University's standards for automatic admission as first-time freshmen. Applicants who earned 24 or more semester hours will be considered transfer students for admission purposes.

The dean of the college the degree-seeking student enrolls in determines how credit earned as a nondegree student is applied toward a degree.

Nondegree applicants must submit to the Office of Admissions a completed application for admission and a nonrefundable application processing fee. Nondegree applicants should refer to the University Calendar on page 302 for general admission deadlines.

## Auditors

An **auditor** is a student who enrolls in a course but receives no grade or credit. Students in this category should indicate auditing status on their application for admission.

Auditors are charged the same tuition as students receiving credit. Auditors cannot change to credit status after the beginning of class work, and cannot be considered for admission to earn credit unless they are admitted to a degree program in the University as a regular student. To do this, the auditor must file the required documents by the deadline for a subsequent semester. A student under suspension cannot be admitted as an auditor.

Students who wish to be admitted as auditors must submit to the Office of Admissions:

1. an application for admission; and
2. a non-refundable application processing fee.

Refer to the University Calendar on page 302 for general admission deadlines.

## Transient Students

A **transient student** is a visiting student from another institution. Transient students must meet the same admissions requirements as transfer students.

Transient applicants must submit to the Office of Admissions:

1. an application for admission;
2. an official transcript or letter of good standing certifying grade-point average from the applicant's sponsoring institution; and
3. a non-refundable application processing fee.

Refer to the University Calendar on page 302 for general admission deadlines.

## UK Students As Transients at Other Schools

UK students may earn a limited amount of credit toward a baccalaureate degree at another college or university, provided they have **prior** approval from their dean and adviser, and provided the other school is fully accredited and the course work meets the University specifications for credit acceptance. The student should consult with an adviser or dean before enrolling at another institution. Students enrolled at other institutions at the same time they are enrolled at UK must have the specific approval of the appropriate dean. Students are responsible for determining whether transfer course work is acceptable and how it applies to the degree program. The University Senate has established certain conditions for accepting credit earned at other schools; therefore, improper enrollment at other institutions will result in the loss of the credit earned there.

A University student who enrolls elsewhere for only a summer session between a spring enrollment at UK and the following fall semester does not need to reapply for admission for the fall semester. The student must arrange for transcripts of transfer work to be sent to the Office of Admissions immediately following the summer session.

## International Students

UK is authorized under federal law to enroll qualified nonimmigrant international students.

International applicants should apply for admission by May 1 for fall semester admission and by September 1 for spring semester admission. International applicants must submit to the Office of Admissions:

1. an application for admission; and
2. a non-refundable application processing fee.

Admission is quite competitive and preference is given to applicants who are best qualified academically. All documents relating to academic records, financial ability, and competency in the English language must be received before permission to enroll and the proper immigration form can be issued. All documents must be official or certified as such. Applicants from non-English speaking countries must provide an official literal English translation of their official school records. Students who wish to transfer credit to UK should submit course descriptions, course syllabi, old tests, papers, and any other materials that can help determine course equivalencies.

All international applicants must have at least $13,000 for each academic year. This amount covers present tuition, fees, books, and living expenses from the fall semester through the spring semester. Students who plan to attend summer school, travel, or who have dependents will need additional funds. All costs are subject to change.

Students whose native language is other than English must score at least 527 on the Test of English as a Foreign Language (TOEFL) to be eligible for general admission to UK. (Some colleges and departments require a score of 550.) "Native language" is defined as an individual's first acquired language and the language of educational instruction. The TOEFL requirement will be waived for students who present an official transcript of satisfactory work taken at an accredited American college, or a college in another country where English is the native language.

The Test of English as a Foreign Language (TOEFL) is offered by the Educational Testing Service and may be taken at various test centers throughout the world. Applicants must take the test early enough to ensure that the results are reported to the University by the required deadlines.

For students with marginal scores on the Test of English as a Foreign Language (TOEFL), the English Department at UK offers an intensive program in English as a second language, designed to improve both oral and written skills. Completion of this program does **not** guarantee admission. For complete details about the program, write to:

**Center for English as a Second Language**
**English Department**
**1215 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**
**(606) 257-7003**

## QUESTIONS CONCERNING ADMISSION DECISIONS

All applicants to the University of Kentucky have the right to question or appeal admission decisions. Applicants wanting to appeal should contact the Office of Admissions to obtain information about how to appeal.

## ADVISING CONFERENCES

New freshmen and transfer students are oriented to the University in two steps. The first step is the Advising Conference, part of orientation at UK for more than two decades. The informative and popular conferences offer students and parents the opportunity to learn more about the University, student life, and residence hall living. Participants attend sessions on the University Health Service, UK Food Service, and the Counseling and Testing Center. Students also meet with an academic adviser, plan their schedules, and register for classes.

First-year students admitted for fall attend a two-day conference. These highly popular conferences allow students more time to meet UK faculty, staff, and students. Participants get the chance to meet with their academic advisers, take placement exams, and register for classes.

Students receive complete information about the Advising Conference when they are admitted.

### Merit Days

The University invites academically talented students and their parents to attend special advising conferences called Merit Days. In order to attend a Merit Day, students must have been admitted with at least a 28 composite score on the ACT Assessment (or 1100 on the SAT). The Merit Day program replaces the Summer Advising Conference and assures participants a higher priority in class selection. Merit Days are usually held in early spring.

## FALL ORIENTATION

The second step to orientation at UK is Fall Orientation. After learning about advising and registration at advising conferences, students are ready to address day-to-day student issues, ranging from how to "ace" their first exam to how to stay healthy as a college student. Fall Orientation, held the weekend before classes begin, offers students the opportunity to learn the ins and outs of campus life through small group interaction with their peers and an upperclass orientation leader. During this required program, students learn about academic success, familiarize themselves with campus resources and important student issues, and expand their circle of friends to include other new students and campus leaders.

Students receive detailed information about Fall Orientation during the summer. During the orientation program, special activities will be available for adult students (25 years of age or older) and transfer students.

## RETENTION

The University seeks to admit only students whose ability and preparation indicate that they have a good chance of succeeding at a major state university. While many students attend school full time, others work and take classes on a part-time basis. Of those admitted to a freshman class, approximately 80 percent return for the sophomore year, and 50 percent of entering freshmen graduate within six years. A total of 60 percent or more of an entering class may graduate within 10 years.

Whether and when a student graduates depends on many factors, such as commitment and motivation, that are impossible to measure ahead of time. University research has shown that students are most likely to graduate if:

- they have strong academic preparation in high school, complete the recommended precollege curriculum with above-average grades, and achieve high scores on college entrance tests.
- they have good study habits and time management skills.
- they work less than 20 hours a week, preferably on campus.
- they live in the residence halls, at least during the freshman and sophomore years.
- they are involved in some campus activity on a regular basis.
- they are committed to graduating and attending graduate or professional school.

## SPECIAL APPLICATION DATES AND PROCEDURES

| For Admission To | Submit | By Deadlines For Fall | Spring | Summer |
|---|---|---|---|---|
| **COLLEGE OF ALLIED HEALTH PROFESSIONS**<br>Students must request applications from the Office of Student Services in the College of Allied Health. Applications for fall admission are available from September 1 to November 30; applications for spring admission are available from February 1 to April 30. | | | | |
| Professional Program Applicants (Students who have completed 60 hours or more at UK, UK community colleges, or other accredited colleges or universities) | **Clinical Laboratory Sciences:**<br>UK, Professional Program Applications, All supporting credentials | Feb. 15 | Sept. 15 | |
| | **Communication Disorders:**<br>UK, Professional Program Applications, All supporting credentials | Feb. 1 | | |
| | **Health Administration:**<br>UK, Professional Program Applications, All supporting credentials | Feb. 1 | | |
| | **Physical Therapy:**<br>UK and Professional Program Applications, All supporting credentials | | June 1 | |
| | **Physician Assistant:**<br>UK and Professional Program Applications, All supporting credentials | Feb. 1 | | |
| **COLLEGE OF ARCHITECTURE** | | | | |
| Freshmen and Transfer Students | ACT scores, Application<br>Test | March 1<br>March 2 | | |
| Transfer Students from NAAB Architecture Programs | Application, Transcript(s), Test/Portfolio | April 1 | | |
| **COLLEGE OF COMMUNICATIONS AND INFORMATION STUDIES** | | | | |
| All applicants, premajor and major. | Application, Transcript(s), Courses in Progress | June 1 | Oct. 15 | April 1 |
| **COLLEGE OF ENGINEERING†** | | | | |
| **COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES** | | | | |
| Upper Division Program Applicants (Students who have 71 semester hours of lower division courses) | **Coordinated Program in Dietetics:**<br>Application, Transcript(s), Recommendations | Feb. 15 | | |
| Upper Division Program Applicants | **Major in Interior Design:**<br>Application, Transcript(s), Portfolio | Jan. 15 | | |
| **COLLEGE OF LAW††** | | | | |
| First-year Students | Law Application<br>LSDAS Report | March 1<br>March 31 | | |
| Transfer Students | Law Application, Transcript(s), Credentials | June 1 | Dec. 1 | May 15 |
| **COLLEGE OF NURSING** | | | | |
| Freshmen (4-year program) | ACT scores, Application | March 1* | | |
| Transfer Students (4-year program) | Application, Transcript(s), ACT if required | March 1* | | |
| RNs only | Application, Credentials | March 1* | | |
| **COLLEGE OF PHARMACY** | | | | |
| Professional Program Applicants (Students who have completed 64 hours or more at UK, UK community colleges, or other accredited colleges or universities) | Application, Transcript(s), Other required credentials | Feb. 1 | | |

*Applications received after the published deadline will be considered on a space-available basis only.

†All Engineering applicants are admitted as "pre-engineering" and meet regular UK admissions deadlines.

††Law school applications are not processed in the Undergraduate Admissions Office. Send applications to College of Law, 209 Law Building, University of Kentucky Lexington, KY 40506-0048.

# FEES

**FEES ARE SUBJECT TO CHANGE WITHOUT NOTICE AND INCREASES MAY BE NECESSARY IN SUBSEQUENT YEARS.**

## FEE PAYMENT POLICY

**Students who advance register for either the fall or spring semesters must make an advance payment of $50. This sum is due in the Office of Student Billing Services at least 15 days prior to the start of classes each semester. This sum will be applied to the student's registration fees. Failure to make this payment by the deadline will result in cancellation of the student's advance registration schedule, and the student will be required to register again during the late registration period at the opening of the term. Students who must register at the beginning of the term as a result of cancellation will be charged a $40 late registration fee. Students who cancel their registration before the first day of classes will receive a full refund of the $50 advance payment.**

**The remainder of registration fees is payable in full at the beginning of classes each semester.** Students who have not paid their fees by the 10th day from the start of classes will have their registration and/or meal card cancelled. Between the 10th and 17th day students may be reinstated to classes and/or meal card by paying their fees and a $50 reinstatement fee. After the 17th day, students may not be reinstated for that semester. Furthermore, they will be considered delinquent for half the amount of the assessed fees, and will be unable to enroll again or receive a transcript until the delinquency is cleared. See the section on Delinquency.

### Late Registration Fee

All continuing students are expected to advance register each semester for the next semester. New students are assigned a specific date for registration. Any student who registers after the regular registration period will be charged a late registration fee of $40.

### Auditors

All auditors are charged the same fees they would pay for credit.

### Zero-Credit Courses

Some University courses are offered for 0 credit hours. The fees for these courses are based on the number of hours per week the course meets, so that the cost of a 0-credit course which meets one hour per week is the same as the cost of a 1-credit course for a student in a particular classification (i.e., resident, nonresident, graduate, undergraduate). Zero-credit courses are counted as part of the student load for fee payment purposes and for purposes of issuing ID cards.

There is no fee for a course numbered 749, or 769, if the student is approved to take the 769 course for 0 credit hours. In a few departments zero-credit courses are actually laboratories which are a required part of another course. They are numbered separately for scheduling purposes, but no additional fee is charged.

## REFUND and FEE LIABILITY POLICY

Tuition refunds or outstanding fee liabilities for students who officially withdraw through the Registrar's Office, or who change their status from full-time to part-time or further reduce their part-time status through Add/Drop, will be made according to the following schedule. All dates are those designated in the official University Calendar.

| SEMESTER | STUDENTS WHO WITHDRAW BY: Regular Day Student | Evening/Weekend | WILL RECEIVE REFUND/REDUCTION | WILL CONTINUE TO OWE |
|---|---|---|---|---|
| Fall 1995 | August 22, 1995 | September 6, 1995 | 100% | 0% |
| | August 29, 1995 | | 80% | 20% |
| | October 20, 1995 | October 20, 1995 | 50% | 50% |
| Spring 1996 | January 9, 1996 | January 24, 1996 | 100% | 0% |
| | January 17, 1996 | | 80% | 20% |
| | March 8, 1996 | March 8, 1996 | 50% | 50% |
| Summer Four-Week Term 1996 | May 7, 1996 | May 7, 1996 | 100% | 0% |
| | May 10, 1996 | | 80% | 20% |
| | May 21, 1996 | May 21, 1996 | 50% | 50% |
| Summer Eight-Week Term 1996 | June 6, 1996 | June 13, 1996 | 100% | 0% |
| | June 10, 1996 | | 80% | 20% |
| | July 10, 1996 | July 10, 1996 | 50% | 50% |

**After official mid-term date per University Calendar — No Refund**

Refunds are based solely on the date of withdrawal, regardless of whether students attend any class(es). As required under section 484B of the Higher Education Act (HEA), to assure recovery of federal financial aid funds, a special refund schedule applies to those students receiving Title IV financial assistance who officially withdraw during their **first** term of enrollment.

A student not paying tuition fees and subsequently leaving or officially withdrawing from school will be held liable for one-half of those fees. In the case of nonpayment, he or she will be declared delinquent subject to the penalties imposed by the institution for financial delinquency.

Questions concerning fee payment procedures may be directed to Judith Marshall, Ombud for Business Affairs, 203 Gillis Building, (606) 257-1841. Questions concerning tuition refunds may be directed to the Registrar's Office, Funkhouser Building, (606) 257-8729.

# TUITION AND FEES
## 1995-96

### Tuition Schedule

| | Semester (Full-time) | Eight-Week Summer (Full-time) | Part-time and Four-Week Fee Per Credit Hour |
|---|---|---|---|
| All undergraduate colleges | | | |
| Resident | $1,130 | $ 570 | $ 95 |
| Nonresident | 3,390 | 1,698 | 283 |
| The Graduate School | | | |
| Resident | $1,240 | $ 690 | $138 |
| Nonresident | 3,720 | 2,070 | 414 |
| College of Law | | | |
| Resident | $2,130 | $ 1,065 | $213 |
| Nonresident | 5,805 | 2,905 | 581 |

| | Semester (Full-time) | Eight-Week Summer (Full-time) | Part-time and Four-Week Fee Per Credit Hour |
|---|---|---|---|
| College of Pharmacy | | | |
| Resident | $1,130 | $ 570 | $95 |
| Nonresident | 3,390 | 1,698 | 283 |
| College of Dentistry (Annual Charges)[1] | | | |
| Resident | $6,170 | | |
| Nonresident | 15,770 | | |
| College of Medicine (Annual Charges)[2] | | | |
| Resident | $8,090 | | |
| Nonresident | 18,310 | | |

### Mandatory Registration Fee*

| Semester Full-time | Annual Charges | Eight-Week Summer (Full-time) | Part-time and Four-Week Fee Per Credit Hour |
|---|---|---|---|
| $167.00 | $334.00 | $36.00 | $6.00 |

*Fees are subject to change without notice.

[1]A half-time tuition rate of $3,085 for resident students and $7,885 for non-resident students is established for those dental students who have been approved by the Dean of the College of Dentistry to take a reduced curriculum load.

[2]A half-time tuition rate of $4,045 for resident students and $9,155 for non-resident students is established for those medical students who have been approved by the College of Medicine Student Progress and Promotion Committee to take a reduced curriculum load.

For the Fall or Spring Semester, registration in 12 credit hours or equivalent constitutes a full-time load for undergraduate and pharmacy students. Registration in 9 hours constitutes a full-time load for graduate students. Law students must register for 10 hours to be considered full-time.

For the Eight-Week Summer Session, registration in 6 credit hours or equivalent constitutes a full-time load for undergraduates and pharmacy students. Registration in 5 hours constitutes a full-time load for graduate and law students.

# HOUSING COSTS
## 1995-96

### ROOM AND MEALS

| All undergraduate residence halls† | Per Year |
|---|---|
| DinerCard ($1250 deposit) | $ 3,078 |
| DinerCard ($1400 deposit) | 3,228 |
| DinerCard ($1700 deposit) | 3,528 |
| DinerCard ($2000 deposit) | 3,828 |
| Special Interest Housing Fee (Jewell Hall/Kirwan II)†† | 104 |
| Per Diem Housing Rate††† | 8.20 |
| **Greg Page Stadium View Apartments** (room only) | |
| Single undergraduate | 1,894 |

Each apartment houses four students and each student is required to pay a $50 deposit.

Meal plan is optional.

**FOUR-WEEK INTERSESSION** (room only)

| | |
|---|---|
| Double occupancy | 229 |
| Single occupancy | 286 |

**EIGHT-WEEK SUMMER SESSION** (room only)

| | |
|---|---|
| Double occupancy | 458 |
| Single occupancy | 572 |

**SEPARATE MEAL CONTRACT RATE**

| | |
|---|---|
| Full-time students living off campus may also purchase a DinerCard. | |
| DinerCard minimum deposit | 50 |

Additional deposits in $50 increments are allowed.

†Housing costs represent $1,828 of 1995-96 Total Cost Figures.

††Jewell Hall will remain open during all stated academic recesses of the University between August 18, 1995 and May 4, 1996, to accommodate students participating in the International Program. Kirwan II will operate as the "Wellness Hall" with special equipment, programming and instruction.

†††The housing rate is for the academic year. This per-diem rate is established for occupancy during stated academic recesses (Thanksgiving, Christmas, Spring Break, etc.) of the University. Students must secure special permission to remain in housing during these periods.

### APARTMENTS AND FAMILY HOUSING

| Single Graduate/Professional Apartments**# | Per Month |
|---|---|
| Cooperstown | |
| efficiency–single occupancy | $ 298 |
| one bedroom–single occupancy | 377 |
| Commonwealth Village, Linden Walk-Rose Lane | |
| efficiency–single occupancy | 314 |
| one bedroom–single occupancy | 392 |

| Family Housing** (one-year contract) | Per Month |
|---|---|
| Cooperstown and Shawneetown | |
| efficiency | 298 |
| one-bedroom apartment | 377 |
| two-bedroom apartment | 408 |
| Greg Page Stadium View Apartments | |
| two-bedroom apartment | 500 |

**Includes adequate basic furnishings and utilities. Does not include board or telephone. Deposit of $150 required.

#Graduate/Professional student housing is available 12 months a year. Meal plan is optional.

### Financial Delinquency

The University expects the student to be financially responsible and not to be delinquent in financial obligations to the University or to any department or division thereof, including room and board payments to sanctioned fraternal student organizations. Such obligations do not include fines and penalties assessed against the student by other than University offices and departments.

Financial obligations that are not met within 10 days after the date due are reported in writing to the proper office. Obligations to any division or department are reported to the office designated by the Vice Chancellor for Administration—Lexington campus.

The appropriate business office notifies the student of the financial obligation. If the student does not settle the obligation by the date designated on the notice, he or she will, subject to regulations promulgated by the Vice Chancellor for Administration—Lexington campus, be considered delinquent, and that office shall notify the University Registrar.

After the University Registrar has been notified that a student is delinquent, the registrar will not allow the student to register, request an official academic transcript, or transfer credits, nor will the registrar award the graduation diploma, until the Registrar's Office has been notified in writing by the appropriate business office that the obligation has been settled.

## HEALTH CARE

For the regular fall and spring semesters, payment of the mandatory registration fee by full-time students entitles them to medical and mental health care at the University Health Service. Part-time students may pay the health fee during the first two weeks of the semester, or use the Health Service on a fee-for-service basis. The health fee is voluntary for all students for the summer sessions. University of Kentucky Health Service, University Hospital and other University of Kentucky Medical Center programs assume no responsibility or liability for medical expenses incurred by students beyond those covered by the University Health Service. For more information on the health fee or the services provided, call (606) 323-5823.

## STUDENT ID CARDS

All students admitted to the University (both full-time and part-time) are expected to obtain a student ID card. This is a permanent card, which becomes valid each semester when fees are paid. **The card is the property of the University of Kentucky** and is to be returned to the Dean of Students upon termination of student status.

This card is provided without cost. The Student ID Office is located in 107 Student Center and is open between 9:00 a.m. and 5:00 p.m., Monday through Friday. For more information regarding Student ID cards and services available on the card, call (606) 257-1378.

A $10 processing charge will be collected for replacing any lost, stolen, or destroyed student ID card. After receiving two replacement ID cards, students must obtain authorization from the Dean of Students for further replacement.

## PERSONAL EXPENSES (not payable to the University)

***Books and Supplies.*** Range from $200 up, depending on the student's major field of study and schedule of classes for the semester. Students may use their Plus Account for purchases at the University of Kentucky bookstore. Plus Accounts may be established in any whole dollar amount at Student Billing Services. For more information about Plus Accounts, call (606) 257-6159.

***Laundry.*** For students living in the residence halls and Greg Page apartments, laundry facilities for personal items are provided. Students activate the laundry machines through a card access system called the Plus Account. Students may establish a Plus Account in any whole dollar amount at Student Billing Services. Local cost for this laundry service is comparable to that in any city. For more information about Plus Accounts, call (606) 257-6159.

# RESIDENCY

**COUNCIL ON HIGHER EDUCATION**
**ADMINISTRATIVE REGULATION**

**CLASSIFICATION OF RESIDENCY FOR ADMISSION AND TUITION ASSESSMENT PURPOSES**

**13 KAR 2:045**
**RELATES TO: KRS 164.020**
**STATUTORY AUTHORITY: KRS 164.020, KRS 164.030**

NECESSITY AND FUNCTION: Public institutions of higher education were established and are maintained by the Commonwealth of Kentucky primarily for the benefit of qualified residents of Kentucky. The substantial commitment of public resources to higher education is predicated on the proposition that the state benefits significantly from the existence of an educated citizenry. As a matter of policy, access to higher education is provided so far as feasible at reasonable cost to residents of the state. It is the long-standing practice of the Council on Higher Education to require students who are not Kentucky residents to meet higher admission standards and to pay a higher level of tuition than resident students. The Commonwealth of Kentucky uses residency requirements to determine items such as voting rights, income tax liability, and employment in certain occupations. The requirements vary in form and substance for each of these uses. The purpose of this regulation is to establish a process and corresponding criteria for the residency classification of students seeking admission to, or enrolled in, public institutions of higher education. Furthermore, it is the intent of the Council on Higher Education that this regulation be interpreted and applied in a uniform manner, as described herein, in determining whether students shall be classified as residents or nonresidents for admission and tuition assessment purposes.

**Section 1. Definitions.** The language of this regulation on residency classification contains some legal terms as well as everyday terms which have specialized meaning in the determination of residency for admission and tuition assessment purposes. The following definitions apply in the interpretation and application of this regulation:

(1) "Academic term" means a division of the school year during which a course of studies is given, e.g., semester, quarter, or intersession.

(2) Enrollment at a college or colleges shall be deemed "continuous" if the person claiming "continuous" enrollment continues to be enrolled at the same degree level for consecutive terms (excluding summer) since the beginning of the period for which continuous enrollment is claimed. The sequence of continuous enrollment is broken if the student fails to enroll, except under extenuating circumstances beyond the student's control, e.g., serious personal illness or injury, or illness or death of parent.

(3) "Degree level" means one (1) of the following:

(a) Undergraduate (enrollment in courses or programs which result in the baccalaureate degree or lower);
(b) Graduate (enrollment in courses or programs which result in a postbaccalaureate degree other than the first-professional degrees in law, medicine, and dentistry); or
(c) Professional (enrollment in courses or programs which result in a professional degree in law, medicine, or dentistry.)

(4) The term "dependent person" means a person who is unable to meet all of the criteria listed in subsection (9) of this section.

(5) "Documentation" refers to the submission of source documents, e.g., official letters, papers, or sworn statements. As a general rule, evidence cited as the basis for domicile shall be documented, and the required documentation shall accompany the application for residency classification.

(6) The term "domicile" means a person's true, fixed, and permanent home. It is the place where the person intends to remain, and to which the person expects to return without intending to establish a new domicile elsewhere. "Legal residence" and domicile convey the same notion of permanence and are used interchangeably.

(7) "Full-time employment" means employment for at least forty-eight (48) work weeks at an average of at least thirty (30) hours per week.

(8) "Half-time enrollment" means any enrollment during an academic term which is equal to one-half (1/2) of full time as determined by the governing board of the institution.

(9) The term "independent person" means a person who meets all of the following criteria. An independent person is one:

(a) Whose parent has not claimed such person as a dependent on federal or state income tax returns for the tax year preceding the date of application for reclassification of residency status;
(b) Who demonstrates no financial dependence upon parent(s); and
(c) Whose parents' income is not taken into account by any private or governmental agency furnishing educational financial assistance to the person, including scholarships, loans, and other assistance.

(10) The terms "institution", "institution of higher education", or "college" refer to all institutions, public or private, offering instruction and conferring degrees beyond the secondary school level, such as four (4) year colleges or universities, seminaries, two (2) year institutions (community colleges and junior colleges), and postsecondary vocational-technical schools.

(11) The term "nonresident" means a person who currently maintains legal residence outside Kentucky or has not met the criteria for establishing residency as defined in this regulation.

(12) The term "parent" means one (1) of the following:

(a) a person's father or mother, or
(b) a court-appointed legal guardian.

The term "parent" shall not apply if the guardianship has been established primarily for the purpose of conferring the status of resident on a person.

(13) The term "resident" means a person who is a legal resident of Kentucky based upon fulfilling the criteria for establishing residency as set out in Section 2 of this regulation.

**Section 2. Guidelines for Determination of Residency.**

(1) Initial classification of residency shall be determined based upon the facts existing when the conditions governing admission for a specific academic term have been met. Initial residency determinations generally are made on the basis of information derived from admissions materials. An undergraduate student whose admissions records show the student to be a graduate of an out-of-state high school is presumed to be a nonresident and shall be initially so classified. A student whose admissions records indicate the student's domicile to be outside of Kentucky at time of application is presumed to be a nonresident and shall be initially so classified.

(2) The domicile of a dependent person is that of either parent. The domicile of the parent shall be determined in the same manner as the domicile of an independent person.

(3) The domicile of a dependent person whose parents are divorced, separated, or otherwise living apart shall be presumed to be Kentucky if either parent is a resident of the Commonwealth regardless of which parent has legal custody or is entitled to claim that person as a dependent pursuant to Kentucky income tax provisions.

(4) Evidence submitted on behalf of a dependent person shall pertain to the domicile of the parent(s). A person claiming independent status shall document that proclaimed status and demonstrate that domicile in Kentucky has been established.

(5) Any dependent person whose parent(s), having domicile in this state, moves from this state shall be entitled to classification as a resident while in continuous enrollment at the degree level in which currently enrolled. When continuous enrollment is broken or the current degree level is completed, the person's residency classification shall be reassessed in accordance with the appropriate sections of this regulation.

(6) An independent person who moves to Kentucky and within twelve (12) months enrolls in an institution of higher education more than half-time shall be presumed to have come to Kentucky primarily for educational purposes rather than to establish domicile in Kentucky. Such person shall be classified as a nonresident unless establishment of a Kentucky domicile can be demonstrated in accordance with Section 3 of this regulation.

(7) Upon moving to this state, an independent person who provides clear and convincing evidence of domicile shall be eligible for resident classification of self, spouse, or dependent children, provided that any of these persons is not in this state primarily as a student. A person who moves to Kentucky primarily for the purpose of enrollment of either self, spouse, or dependent in an institution of higher education shall not be granted resident classification unless such person can demonstrate establishment of a Kentucky domicile in accordance with Section 3 of this regulation.

(8) If an independent person or the parent of a dependent person moves out-of-state, domicile, having been established in Kentucky, is retained until steps are taken to establish domicile elsewhere. The same facts and conditions which are presumed in establishing a Kentucky domicile are similarly presumed in determining when a former Kentucky domicile has been abandoned. In the absence of clear and convincing evidence as to the domicile of an independent person who at one time had domicile in Kentucky, that person is presumed to have lost Kentucky domicile upon a one (1) year absence from the state.

(9) An individual shall not be deemed to have established domicile in this state solely by reason of marriage to a Kentucky resident. However, the fact of marriage to a Kentucky resident shall be deemed relevant evidence to be considered in ascertaining domiciliary intent. A student initially classified as a nonresident who marries a Kentucky resident shall be eligible for resident reclassification if the requisite criteria listed in Section 3 of this regulation are met.

(10) Given transfer to, or matriculation in, another Kentucky public institution of higher education, the student's residency classification shall be reassessed by the receiving institution.

(11) An individual whose domicile was Kentucky at the time of induction into the military, and who maintains Kentucky as home of record and permanent address, shall be entitled to resident status if the individual returns to this state within six (6) months of the date of discharge from active duty.

(12) A member or the spouse of a member of the Armed Forces of the United States stationed in Kentucky on active military orders is considered domiciled in the state and shall be entitled to classification as a resident while the member is on active duty in this state pursuant to such orders. The spouse of the member, while in continuous attendance at the degree level in which currently enrolled, shall not lose resident status when the member is thereafter transferred on military orders. Individuals classified under this section shall be reassessed in accordance with the appropriate sections of this regulation when the qualifying condition is terminated. This regulation is invalid if the individual is stationed in Kentucky for the purpose of enrollment at an institution of higher education or on temporary assignment of less than one (1) year.

(13) A dependent person whose parent is a member of the Armed Forces and stationed in this state on active duty pursuant to military orders shall be classified as a resident. The student, while in continuous attendance at the degree level in which currently enrolled, shall not lose resident status when the parent is thereafter transferred on military orders. When continuous attendance is broken or the current degree level is completed, the person's residency classification shall be reassessed in accordance with the appropriate sections of this regulation. This subsection does not apply if the parent is stationed in Kentucky for the purpose of enrollment at an institution of higher education or on a temporary assignment of less than one (1) year.

(14) Any person holding a permanent residency visa or classified as a political refugee has the capacity to remain in Kentucky indefinitely and shall establish domicile in the same manner as any other person. Time spent in Kentucky and progress made in fulfilling conditions of domicile as stated in Section 3(1) prior to obtaining permanent status may be considered in establishing Kentucky domicile.

(15) Any person holding a nonimmigrant visa with designation A, E, G, H, I, or L may remain in Kentucky as long as the authorized purpose or established need continues and may establish domicile the same as any other person. In assessing the residency status of such a person, other sections of this regulation shall apply and the person's purpose and length of stay as well as other conditions governing presence in Kentucky shall be determined and considered. If this review justifies a resident classification, the person shall be classified as a resident for admission and tuition assessment purposes.

(16) Any person holding a nonimmigrant visa with designation B, C, D, F, J, K or M does not have the capacity to remain in Kentucky indefinitely and may not attain Kentucky resident status for admission and tuition assessment purposes.

(17) Pursuant to KRS 164A.330 and 200 KAR 16:040, beneficiaries of a Kentucky Educational Savings Plan Trust shall be granted resident classification for tuition purposes if:

(a) The beneficiary is covered under a vested participation agreement;
(b) The beneficiary has been a continuous resident of the Commonwealth of Kentucky during the eight (8) year vestment period; and
(c) The beneficiary enrolls in an institution of higher education in Kentucky prior to enrollment in any other educational institution.

(18) No independent person shall be presumed to have gained resident status while being enrolled in any institution of higher education more than half-time in the absence of clear and convincing evidence that the person has established domicile in Kentucky.

(19) Domicile shall not ordinarily be conferred by the performance of acts which are auxiliary to fulfilling educational objectives or are performed as a matter of convenience. Mere physical presence in Kentucky (including living with relatives or friends) is not sufficient evidence of domicile.

**Section 3. Types of Evidence to Be Considered for Establishment of Domicile.**

(1) Evidence submitted on behalf of a dependent person shall pertain to the domicile of either parent. Initial classifications generally are made on the basis of information derived from admissions materials, and individuals who enroll in college immediately following graduation from high school and remain enrolled are treated as dependent persons unless the contrary is evident from the information submitted. In such cases, domicile shall be inferred from the student's permanent address, parent's mailing address, or location of high school of graduation.

(2) A person claiming independent status shall document independent status under Section 1(5) of this regulation and shall demonstrate by clear and convincing evidence that domicile in Kentucky has been established by that person's acts. If an independent person asserts that domicile in Kentucky has been established, the person has the burden of proving that assertion by clear and convincing evidence.

(3) The determination of domicile shall be based upon verifiable circumstances or actions. No single fact is paramount, and each situation shall be evaluated to identify those facts which are essential to the determination of domicile.

(4) The following facts, although not conclusive, shall have probative value in support of a claim by an independent person for resident classification:

(a) Acceptance of an offer of full-time employment or transfer to an employer in Kentucky or contiguous area while maintaining domicile in Kentucky;
(b) Continuous physical presence in a nonstudent status for the (twelve) 12 months immediately preceding the last date for enrollment in an institution;
(c) Filing of Kentucky resident income tax return for the calendar year preceding the date of application for reclassification of residency status;

(d) Full-time employment of at least one (1) year while living in Kentucky;

(e) Attendance as a full-time, nonresident student at an out-of-state institution of higher education while determined to be a resident of Kentucky;

(f) Abandonment of a former domicile and establishing domicile in Kentucky with attendance at an institution of higher education following and only incidental to such change in domicile;

(g) Payment of occupational taxes in Kentucky;

(h) Payment of real property taxes in Kentucky;

(i) Payment of intangible personal property taxes in Kentucky;

(j) Ownership of real property in Kentucky, if the property was used by the student as a residence for at least six (6) months preceding the date of application for reclassification of residency status;

(k) Long-term lease (at least twelve (12) consecutive months) of noncollegiate housing;

(l) Kentucky automobile registration;

(m) Kentucky driver's license;

(n) Continued presence in Kentucky during vacation periods;

(o) Marriage to a Kentucky resident; and

(p) Registration as a Kentucky voter.

(5) Documentation. The determination of domicile shall be based upon verifiable circumstances or actions, and a student may be required to submit original or notarized copies of any relevant evidence pertaining to domicile. When reviewing the documentation submitted, institutions may request additional documentation to clarify the person's circumstances and to formulate a classification decision which considers all relevant facts.

(6) Submission of False Documents. A student who gives incorrect or misleading information to institution officials may be subject to criminal prosecution and to such disciplinary sanctions as may be imposed by the institution, which shall include but not necessarily be limited to the payment of nonresident tuition for each academic term attended.

**Section 4. Responsibilities**

(1) Institution responsibilities. Each institution shall designate an administrative office or person with delegated day-to-day responsibility for administration of this classification regulation and for evaluating and deciding student requests for reclassification. Each institution shall also establish a residency review committee (hereafter the committee) to assist and recommend action on student requests for reclassification referred to the committee by said administrative office or person having day-to-day responsibility for this regulation. To evaluate student requests for reclassification, each institution shall establish an operational policy including procedures and designated responsibilities. The Council on Higher Education Residency Classification Policy shall be published in its entirety in the official bulletin(s) of each institution.

(2) Student Responsibilities. The responsibility for registering under the proper residency classification is that of the student. It is the student's obligation to raise questions concerning residency classification and make application for change of residency classification with the administrative officials of the institution. A student classified as a resident who becomes a nonresident shall be required to notify immediately the proper institutional officials. However, if the student fails to notify institution officials of the change in status, institutional officials may investigate and evaluate the current status of the student regardless of the source of the information. A student classified as a nonresident is considered to retain that status until the student makes written application for reclassification in the form prescribed by subsection (3) of this section and is officially reclassified by the proper administrative officials.

(3) Request for reclassification. Application for change of residency classification shall be made to the administrative office or person designated by the institution for this purpose. Such application with supporting documentation shall be made by the student not more than forty-five (45) calendar days after the first day of classes of the academic term for which reclassification is sought. A student may apply for reclassification only once during the academic term for which reclassification is requested.

(a) To support full consideration of a request for a change in residency classification, each application shall consist of a complete affidavit which includes the necessary documentation to substantiate facts cited for reclassification. Each applicant is encouraged to submit a formal statement indicating the basis for the claim of resident status. The student shall be responsible for ensuring that all necessary documentation is submitted with the affidavit. Incomplete applications may be returned to the student for completion at the discretion of appropriate institutional officials.

(b) Applications for reclassification shall be reviewed according to institutional policy. When applications for reclassification are referred to the committee, the student shall be notified in writing as to the committee's decision on the application. The committee's written decision on residency shall include findings of fact, and determination of whether the applicant is deemed to be a "dependent person" or "independent person," whether the applicant is a "resident" or "nonresident," and the reason(s) based upon this regulation for said determinations. If an application results in a change of classification from nonresident to resident, such change shall not be made retroactive beyond the academic term in which application for resident classification is made. A student denied resident classification by the committee shall have the right to appeal such decision to the Council on Higher Education.

**Section 5. Procedure for Appeal to the Council On Higher Education.**

(1) The Executive Director of the Council on Higher Education shall appoint a person to serve as an appeals officer. The appeals officer shall review all residency appeals from the public institutions of higher education to determine if the committee's written decision is supported by substantive evidence and in conformity with this regulation.

(2) After the student receives the decision of the committee, the student has fourteen (14) calendar days in which to appeal that decision to the Council on Higher Education. The student initiates this process by giving written notice to the chair of the committee or the person or office designated by the institution to handle such appeals. Appeals filed more than fourteen (14) calendar days after receipt of the decision of the committee shall be dismissed and the decision of the committee shall be final.

(3) The committee or its designated representative shall be responsible for forwarding to the Council on Higher Education a complete copy of the student's file within fourteen (14) calendar days of the receipt of a notice of appeal. The student may review the content of the file before it is forwarded to the Council on Higher Education.

(4) The appeal shall be considered on the written record alone and new or additional evidence shall not be considered.

(5) The appeals officer shall review the written record and the committee's written decision and shall make a recommendation to affirm, modify, or reverse the committee's decision. The appeals officer may order the appeal remanded to the committee for further proceedings before the appeals officer renders a recommendation. Within twenty-one (21) calendar days after receipt of the student's file, the recommendation of the appeals officer shall be forwarded to the Executive Director of the Council on Higher Education or designated representative. The Executive Director of the Council on Higher Education or designated representative shall promptly forward the recommendation of the appeals officer to the institutional representative designated to handle appeals for final disposition by the institution in accordance with established institutional procedures.

(6) The institutional representative shall promptly forward the recommendation of the appeals officer to the student. Each party (the institution and the student) shall have ten (10) calendar days after receipt of the appeals officer's recommendation to file written exceptions to the report with the institutional representative designated to handle final disposition of appeals. The institution shall make final disposition of the appeal and notify the student within thirty (30) calendar days after expiration of the ten (10) day period for filing exceptions.

**Section 6.** This regulation supersedes all previous policies and regulations of the Council relating to residency classification of students for tuition assessment purposes.

**Revised Effective April 5, 1991**

For further information about residency, please contact the Registrar's Office, Funkhouser Bldg., University of Kentucky, Lexington, KY 40506-0054.

# STUDENT FINANCIAL AID, AWARDS, AND BENEFITS

Applicants for University financial aid are given equal consideration, regardless of race, color, religion, sex, marital status, beliefs, age, national origin, sexual orientation, or handicap.

The University of Kentucky offers three types of financial aid to students:

1. Financial aid **based on financial need** is awarded to undergraduate and graduate students by the Office of Student Financial Aid.
2. Stafford Loans not based on financial need are available to students.
3. Financial aid **based on academic merit** is awarded by the Office of Academic Affairs, as well as by certain academic departments and colleges.

Graduate students should consult *The Graduate School Bulletin* for information about assistantships and fellowships.

Each year the amount of funds requested by eligible applicants falls short of the resources available. The Office of Student Financial Aid bases its decisions on **a)** financial need, and **b)** the date of application. **Students should apply as early as possible, preferably before April 1.** Qualified students who apply after this date will receive assistance, but will receive less because some funds will already be exhausted. **Students should not enroll in classes with the intent of obtaining financial aid after the semester is underway.**

For more information on financial aid, contact:

**Office of Student Financial Aid**
**128 Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**
**(606) 257-3172**

## APPLYING FOR FINANCIAL ASSISTANCE

### Entering Freshmen

Applicants can request financial aid forms from their high school.

**Apply early.** Application material for the fall semester is available in January.

Follow the procedures listed below. Applicants will be considered for need-based scholarships awarded by the Office of Student Financial Aid, Pell Grants, CAP/Kentucky State Grants, Supplemental Education Opportunity Grants, Perkins Loans, Nursing Loans, Health Professions Loans, Federal Work-Study Program, Federal Direct Stafford, and Federal Direct PLUS loan.

1. Submit the Free Application for Federal Student Aid (FAFSA) **no later than April 1**, designating UK to receive the analysis. UK's identification number is **001989**.
2. Submit a Financial Aid Transcript from each post-secondary school previously attended, **even if** aid was not received from the institution.

A student must enroll in a degree program at UK in order to be awarded financial aid. The Office of Student Financial Aid informs students of financial aid decisions in June (or as soon thereafter as possible). Financial aid is either credited directly to the student's University account or it is disbursed by check at the beginning of each semester.

**Aid recipients should plan to have enough money for initial expenses for books, meals, and incidentals for the first three weeks of the semester until their aid is processed.**

Federal regulations require a number of applicants to verify the information they report. Be as accurate as possible when filling out financial aid forms. Since some of the application deals with income, plan to prepare income tax returns early. Changes in federal regulations and methodology for determining financial need may produce results which differ from year to year.

### Continuing Students and Transfer Students

Continuing students and transfer students **must reapply** for financial aid (including scholarships) each year by submitting the Free Application for Federal Student Aid (FAFSA). This is required in order to track changes in student or family resources that could affect the amount of an award. Contact the Office of Student Financial Aid for application material. The FAFSA must be completed and returned according to the previously listed procedures for new students. Completing a FAFSA is also the first step in applying for a Federal Direct Stafford loan.

The Office of Student Financial Aid informs students of financial aid decisions in June (or as soon thereafter as possible).

### Medical and Dental Students

Medical students apply for financial aid through the Office of Education, College of Medicine, MN 104 A. B. Chandler Medical Center, (606) 323-5261. Dental students apply in the Office of Student Affairs, D-155 A. B. Chandler Medical Center, (606) 323-5280.

## CONTINUED ELIGIBILITY FOR STUDENT FINANCIAL AID

Students must maintain satisfactory academic progress toward a degree to continue receiving financial aid. Normally, full-time undergraduate and graduate students must earn 24 and 18 credit hours respectively in a calendar year. Students enrolling for less than full-time can earn proportionally fewer credit hours. Undergraduates receiving financial aid **must** have a cumulative grade-point average of at least 2.0 at the end of their sophomore year. Students who fail to maintain

satisfactory academic progress may reestablish their eligibility by completing the required number of credits at their own expense in a subsequent enrollment period. Contact the Office of Student Financial Aid for details on maintaining and reestablishing satisfactory progress.

An undergraduate student may receive no more than 10 semesters of federally funded financial aid. (The maximum is 12 semesters for a student enrolled in a five-year program.) A graduate or professional student may receive no more than 10 semesters of federally funded financial aid.

## GRANTS

A **grant** is a financial aid award that does not require repayment. Students can apply for all of the grant programs describe below by completing a Free Application for Federal Student Aid (FAFSA).

### Federal Pell Grants

The federally funded Federal Pell Grant Program provides grants to eligible undergraduate students working on their first baccalaureate degree. Federal Pell Grants currently range in value from $400 to $2,300 per school year and are based upon the financial circumstances of the family and applicant.

The U.S. Department of Education determines eligibility according to financial need. Applicants will receive a Student Aid Report (SAR) four to six weeks after applying. The SAR authorizes the University to release funds. Students should mail all copies of these forms to the Office of Student Financial Aid immediately upon receipt. Eligible students who bring their SARs to campus when they enroll for classes, rather than mail them, will encounter a delay in receiving their funds.

### Supplementary Educational Opportunity Grants

The Higher Education Act of 1980 provides Federal Supplementary Educational Opportunity Grants for undergraduate students who need financial aid to enter or remain in college. The maximum amount of the grant is $1,500, but the maximum amount is usually not awarded, since there are more eligible applicants than available funds.

### Kentucky Higher Education Assistance Authority

The KHEAA Grant Program was established by the Kentucky General Assembly in 1974 and is administered by the Kentucky Higher Education Assistance Authority. KHEAA Grants are one-year monetary awards based on financial need. They may be renewed for a total of eight semesters if financial need is established. The amount of the grant is $960 annually.

To be eligible for a KHEAA Grant, a student must be an undergraduate, a U.S. citizen or permanent resident, a Kentucky resident, and must be enrolled at an eligible institution located within the Commonwealth of Kentucky.

KHEAA offers assistance to students pursuing careers in education, who plan to teach science or mathematics, or who are Kentucky high school graduates with outstanding academic records. For more information, contact KHEAA, 1050 U.S. 127 South, Frankfort, KY 40601.

## LOANS

Loans generally supplement a student's savings, earnings, or other financial assistance. Loan funds generally are not adequate to cover **all** expenses. When possible, loans are combined with other types of financial assistance to **reduce** the amount a student must borrow.

### Federal Perkins Loans

These loans, formerly called National Direct Student Loans, are made available on a fund-matching basis between the University and the federal government.

A student must demonstrate financial need and the academic ability to do acceptable work at the University. The amount of loan is determined by the Office of Student Financial Aid based on the needs and resources of the student and available funds. However, the aggregate loan over a number of years cannot exceed $9,000 for undergraduates and $18,000 for graduate and professional students.

Payment is not required while the borrower is enrolled as a half-time student. Interest begins to accrue at a rate of 5 percent per year at the beginning of the ninth month after the borrower ceases to be a half-time student. Here, "half-time" is defined as half a normal load or a minimum of six hours for undergraduate students.

### Health Professions Loans

Students in the Colleges of Medicine, Dentistry, and Pharmacy are eligible for Federal Health Professions Student Loans. These are cooperative loan funds made available on the same basis as the Federal Perkins Loan Program described above.

The law requires that borrowers be enrolled or be accepted as full-time students in good standing in the Colleges of Medicine, Dentistry, or Pharmacy and be in need of a loan to continue their professional education.

A student may borrow up to $2,500 plus tuition in one academic year. The borrower must sign a note for the loan, and repayment begins one year after the borrower ceases to be a full-time student. Repayment is to be completed within 10 years thereafter. Interest on the loan is 5 percent but does not accrue until repayment begins. A loan is cancelled on receipt of proof of death or total, permanent disability.

### Nursing Loans

The Federal Nursing Student Loan Program for full-time students in the College of Nursing is established on the same basis as the Federal Perkins and Federal Health Professions Student Loan Programs. A full-time nursing student may borrow up to $2,500 in one academic year, up to an aggregate of $10,000. The borrower must sign a note. Repayment of the loan begins nine months after the borrower ceases to be a full-time student in the nursing program and must be completed within 10 years thereafter. Interest is 5 percent a year and begins to accrue at the beginning of the tenth month after the borrower graduates or leaves school. The loan is cancelled upon receipt of proof of death or total, permanent disability of the borrower.

### Federal Direct Plus Loans

Applications for Federal Direct Plus Loans are available at the Office of Student Financial Aid.

### Federal Direct Stafford Loans

The University of Kentucky participates in the Federal Direct Stafford Loan Program through an agreement with the Department of Education. (The school receives loan funds directly from the U.S. Department of Education and disburses them to eligible students.) Undergraduate students with a freshman classification may borrow up to $2,625 per academic year. Students with a sophomore classification may borrow up to $3,500 per academic year. Students with a junior, senior, or fifth-year classification may borrow up to $5,500 per academic year. Graduate students may borrow up to $8,500 per academic year. The amount of the loan may not exceed the cost of attending or the cost of attending less other aid received minus family contribution, whichever is less. The aggregate loan limits are $17,250 for undergraduate students, and $54,750 for graduate students.

For students borrowing for the first time, the interest rate cannot exceed 8.25 percent and repayment begins six months after the borrower leaves school. In addition, a 4 percent origination fee may be charged on all loans.

Students must complete a Free Application for Federal Student Aid (FAFSA) to apply for a Federal Direct Stafford Loan. This form is available from the Office of Student Financial Aid.

**Apply early**. Allow a minimum of 4 to 8 weeks to process the loan.

**Unsubsidized Federal Direct Stafford Loans**

Unsubsidized Federal Direct Stafford Loans have the same terms and conditions as Direct Stafford Loans, except that the borrow is responsible for interest that accrues while the borrower is in school. Independent undergraduate and graduate students have increased eligibility.

The Unsubsidized Federal Direct Stafford Loan program is open to students who may not qualify for subsidized Federal Direct Stafford Loans or who may qualify for only partial subsidized Federal Direct Stafford Loans. Borrowers may receive both subsidized and unsubsidized Federal Direct Stafford Loans totaling up to the applicable Stafford limit, if they do not qualify for the full amount permitted under the subsidized Federal Direct Stafford Loan Program.

Borrowers pay an origination fee of 4 percent. The fee is paid to the Department of Education.

**Short-term Loans**

Students are eligible to receive short-term loans of up to $100 for 60 days interest-free. These monies have been made available by student organizations and by the University's Women's Club.

Please note that it generally takes four to five days to process a short-term loan application. Also, short-term loans are not available during the first three weeks of a semester or immediately preceding the close of a semester. Only students who have paid their tuition and are in good financial standing with the University are eligible. Contact the Office of Student Financial Aid for more information.

## SCHOLARSHIPS

Scholarship programs based primarily on **financial need** are administered by the Office of Student Financial Aid. Students with substantial financial need should read the preceding information and contact the Office of Student Financial Aid.

Scholarship programs based primarily on **academic merit** are administered by the Merit Scholarship Office. To be eligible, entering freshmen must have a minimum grade-point average of 3.30 and an ACT composite score of at least 28 or an equivalent SAT total. Students transferring from UK community colleges have a special scholarship category. Continuing students who have demonstrated high academic achievement may apply for an Academic Excellence Scholarship. All scholarships are awarded on a competitive basis. Consideration is given, as appropriate, to the applicant's test scores, grades, educational goals, extracurricular activities, work experience, and writing ability.

The deadline for new freshmen to apply for merit scholarships is the first Friday in January. The deadline for transfer students from UK community colleges is March 1. Continuing students apply in April. For more information, contact the Director of Merit Scholarship Programs, 211 Funkhouser Building, University of Kentucky, Lexington, KY 40506-0054, (606) 257-4198.

Many academic departments and colleges have funds of their own that are granted to deserving students. For more information, check with the individual college or department of interest.

## THE COLLEGE WORK-STUDY PROGRAM

The College Work-Study Program (CWS) provides jobs for students based on financial need. Work-study aid is usually combined with other kinds of aid, and preference is given to students with the greatest need.

A student must demonstrate financial need as determined by the needs analysis to be eligible and must be enrolled at least half-time during the academic year. Students who are not enrolled for the summer sessions may be eligible to work full-time during the summer. Students who work full-time in the summer are obligated to save from their earnings for their fall semester expenses. Summer work applications are available in the Office of Student Financial Aid after March 1.

Students are limited in how much they can earn in Work-Study, an amount determined by financial need. Students are not permitted to earn more than the amount specified on their *Notice of Award*. Rates range from $4.50 to $5.50 per hour for freshmen, based on factors such as campus, year in school, and location of assignment.

## STUDENT EMPLOYMENT SERVICE

The Student Employment Service helps students find part-time jobs during the school year and full-time jobs during the summer. Employers at the University and in the Lexington area voluntarily list jobs for students, and the Employment Service refers registered student applicants to appropriate interviews.

To register at the Student Employment Service, students complete a brief application indicating skills, interests, and available work schedule. Students who receive financial aid must submit a copy of the award received with their application. Some career-related job opportunities require additional paperwork.

For more information, contact the STEPS Office, 252 East Maxwell Street, University of Kentucky, Lexington, KY 40506-0314 (606) 257-3843.

## SPECIAL AWARDS

**The Herman L. Donovan Fellowship for Senior Citizens**

The Donovan Fellowship, named in honor of the late Herman L. Donovan, University President from 1941-1956, is open to persons who are 65 years of age or older. Tuition is waived for Donovan Scholars. Students may work toward an undergraduate or graduate degree, audit classes for the joy of learning, or take individual courses for credit. The program is available at the Lexington campus and at all community colleges.

Donovan Scholars participate in the many intellectual, social, and cultural programs which characterize the University. In addition, several special programs and events are available to Donovans. These include an educational forum featuring topics of special interest, a music program, art classes, radio drama, gerofitness, and Great Decisions.

For more information, contact the Donovan Scholars Program, Ligon House, University of Kentucky, Lexington, KY 40506-0442, (606) 257-2656.

**Undergraduate Research and Creativity Program**

The Oswald Undergraduate Research and Creativity Program began in 1964 with the express purpose of encouraging

research and creative activities by undergraduate students at UK.

The objectives of the program are: (1) to stimulate creative work by undergraduate students, and (2) to recognize individuals who demonstrate outstanding achievement. This recognition emphasizes the importance the University places upon academic excellence.

The program has categories in Biological Sciences, Design (including architecture, landscape architecture, interior design), Fine Arts, Humanities/Creative, Humanities/Critical Research, Physical and Engineering Sciences, and Social Sciences. In the science categories and the Humanities/Critical Research category, students generally submit research papers done for class or on their own. For the Humanities/Creative category, students submit short stories, original plays or poetry. The Fine Arts category is appropriate for musical compositions, paintings, sculpture, videos/films, or photographic essays. Many fine works of art and serious research papers are recognized by the Oswald Competition each year. This competition is unique to the University and provides an excellent opportunity for undergraduates to test their skills and to see their academic work in a serious, professional light.

Awards are $350 for first place in each category, $200 for second place. The Dean of Undergraduate Studies presents the awards and a certificate to each winner at the Awards program held each spring.

Any undergraduate (full- or part-time, enrolled for either semester and who does not already have a baccalaureate degree) is eligible to enter. For information and applications, contact the Office of Undergraduate Studies, 405 Patterson Office Tower, (606) 257-5448.

### Other Awards Programs

Many academic departments at UK give special awards and prizes to students each year. Generally, special awards are cash prizes and are given on the basis of academic achievement or outstanding scholarship.

## VETERANS BENEFITS

### Benefits for Veterans and Eligible Dependents

Federal and state benefit programs for veterans and eligible dependents are coordinated through Veteran Services, located in 10 Funkhouser Building.

Veterans or eligible dependents (widow, wife of totally and permanently disabled veteran, child of deceased or totally and permanently disabled veteran) should report to the Veteran Services office during advance registration or on the Advising Conference date and pick up information about enrolling for benefits.

Students who have already applied for federal or state benefit programs should bring certificates showing entitlement or eligibility.

Students who depend on these benefits to meet their living expenses should bring enough money to cover expenses for at least eight weeks while the first benefit check is processed.

For further information on V.A. educational benefit programs, contact the Veterans Administration Regional Office, 545 South Third Street, Louisville, KY 40202-1838, (800) 827-1000.

### Children of Kentucky War Veterans Tuition Waiver Program

Under the provisions of KRS 164.505 and 164.515 certain children of Kentucky war veterans are eligible for assistance from the Commonwealth of Kentucky. All persons eligible under this program must meet admissions requirements and submit all necessary documents establishing eligibility under the program.

Generally, children of Kentuckians who were killed in military action or who were permanently and totally disabled in war-time military services are eligible to have their tuition waived. This waiver does not cover special fees or additional fees that are charged for certain courses.

For additional information on the provisions of KRS 164.505 and .515, contact the Kentucky Center for Veterans Affairs, Department of Military Affairs, Commonwealth of Kentucky, 600 Martin Luther King, Jr. Place, Louisville, KY 40202.

## ROTC FINANCIAL ASSISTANCE

### Army ROTC Scholarships

**Two-, three- and four-year scholarships** are available through the Army Reserve Officer's Training Corps program. These scholarships pay tuition, required fees, $225 per semester for textbook costs, and $150 per month tax-free subsistence allowance during the school year. Scholarship recipients will be commissioned as officers in the United States Army upon graduation and will likely be committed to four years active service.

**Length of scholarship, application deadline, and where to apply:**

1. Four-year scholarships: July 15 (Early Board); December 1, junior or senior year of high school, directly to: Army ROTC Scholarship, Fort Monroe, VA 23651-5238; or call 1 (800) USA-ROTC.
2. Two- and three-year scholarships: March 1, college student with two or three academic years remaining, directly to: Professor of Military Science, Army ROTC, University of Kentucky, Lexington, KY 40506-0028; or call (606) 257-2696.

It is recommended that students obtain scholarship applications from the Professor of Military Science. Four-year applicants may also obtain applications from high school counselors, or by writing directly to Fort Monroe, Virginia.

Applicants who apply for the early selection board (July 15) and who are not selected will automatically be reconsidered by the December board.

All scholarship applicants are evaluated by a board which considers the following criteria: ACT/SAT scores; high school academic record; extracurricular and/or athletic activities; personal interview; and results of a physical aptitude examination. Winners must pass an Army medical examination to receive the scholarship.

### Advanced Program

All contracted cadets receive subsistence payment of $150 per month during the school year. Active duty commitments vary from 90 days to four years, depending upon the component of the Army selected.

### Basic and Advanced Camps

These camps are held during the summer for six weeks, and each pays over $700 to the student for attendance.

Basic Camp, or Camp Challenge, is held at Fort Knox, Kentucky, and is attended voluntarily by students who may not otherwise be eligible for entry into the Advanced Program. No military obligation is incurred and students may withdraw at any time. Completion of training qualifies the student to enter the Advanced Program.

The Advanced Camp is a requirement of the Advanced Course and participants normally attend between the junior and senior year.

**Simultaneous Membership Program**

This program is open to Advanced Course students and enables them to join the U.S. Army Reserve or National Guard as officer trainees while enrolled in college. Pay could exceed $3,000 per year. See the Professor of Military Science for details.

**Air Force ROTC Scholarships**

The types of financial assistance available through Air Force ROTC are briefly described below. For further details on eligibility and requirements, contact the Department of Aerospace Studies, 203 Barker Hall, University of Kentucky, Lexington, KY, 40506-0028, (606) 257-7115. Additional information is also listed in this Bulletin under Aerospace Studies.

**College Scholarship Program.** Scholarships are available to those qualified and selected students who enroll in the Air Force ROTC cadet program. These scholarships cover tuition and laboratory fees, provide an allowance for books, and provide a nontaxable subsistence allowance of $150 per month. Qualified high school students can apply for four-year Air Force ROTC scholarships. Applicants for four-year scholarships are evaluated on the basis of the following criteria: a composite score of at least 24 on the American College Test (ACT) with scores of at least 21 in Math and Verbal; or a score of at least 1000 total on the Scholastic Aptitude Test (SAT) with scores of at least 500 in Math and 450 in Verbal. Also evaluated are the applicant's high school academic record; class ranking; extracurricular and athletic activities; personal interview; and ability to qualify on an Air Force medical examination.

High school students who meet the basic eligibility requirements for a four-year scholarship must submit an application to HQ Air Force ROTC postmarked by December 1 of the year prior to enrollment in the program (usually the senior year in high school). All selections for four-year scholarships are made at Air Force ROTC headquarters. There is an **Early Select Program** which considers high school seniors in the top five percent of their high school class who have submitted a complete scholarship application and have been evaluated during ongoing boards from August to October of their senior year. Students not selected will met regularly scheduled boards in November, January, or March. High school students should contact their school guidance counselor or principal late in the junior year for applications. Applications may also be obtained from the Professor of Aerospace Studies, 203 Barker Hall, University of Kentucky, Lexington, KY 40506-0028, or by writing to Air Force ROTC/RRUC, Maxwell AFB, AL 36112-6663.

**Other Scholarships.** Two and three year scholarships are also awarded to cadets in the Air Force ROTC program on a competitive basis and initial selection is made on campus by a board composed of Air Force ROTC officers. Final selection is made by a central selection board at the Air Force ROTC headquarters. Applicants for these scholarships should contact the Professor of Aerospace Studies on campus. There is also an **Express Scholarship Program** designed to attract minority students and students majoring in academic areas critical to the Air Force such as: electrical engineering, math, nursing, pharmacy, physical therapy, and physics. This is a partial list which is updated often. Please call (606) 257-7115 for the latest information. The Express Scholarship program awards two- and three-year scholarships.

Furthermore, there is a **one-year scholarship program** available to individuals pursuing a critical area, such as nursing and electrical engineering. Students complete the Professional Officer Course in 12 to 15 months. Critical areas are updated every year. For current information, call (606) 257-7115.

**Two-Year Program.** Qualified students attending UK or transfer students from other institutions who did not enroll in the first two years of Air Force ROTC may receive a commission through the Two-Year Program. Those accepted receive a nontaxable subsistence allowance of $150 a month and may qualify for up to $1000 per semester toward tuition and books. The basic requirement to enter this program is that the student have two academic years remaining, either at the undergraduate or graduate level. Selection is competitive. Interested students should contact the Professor of Aerospace Studies early in their sophomore year.

**Commission and Active Duty Requirements.** All students who successfully complete the professional officer course, usually taken during the junior and senior years, and a summer field training course, will be commissioned as second lieutenants in the active duty United States Air Force. A leadership laboratory is also a requirement to becoming commissioned and is open to students who are members of the Air Force Reserve Office Training Corps or are eligible to pursue a commission as determined by the Professor of Aerospace Studies. Students incur a service commitment ranging from four to eight years, depending on the specific program qualifications; although, most are only committed for four years. Information is current as of 1 January 1995 and is subject to change. Please call (606) 257-7115 for more information.

# SPECIAL ACADEMIC PROGRAMS

## THE ACADEMIC COMMON MARKET

The Academic Common Market allows out-of-state students to pay in-state tuition while studying selected academic programs that are not available in their home states. The list of programs included in the Academic Common Market is revised annually to reflect the changing needs and offerings of participating states. The 14 states that participate in the Academic Common Market are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. For more information, contact the Academic Common Market Institutional Coordinator, Academic Affairs Office/Central Administration, 7 Administration Building, University of Kentucky, Lexington, KY 40506-0032, (606) 257-5917.

## ACCELERATED PROGRAMS

The University of Kentucky has a broad policy for accelerated programs. Among the opportunities available are special programs for high school students and a variety of credit-by-examination programs. Many students use these opportunities to earn degrees in less time. Others prefer to use the time gained to explore areas outside their majors or to do more work in their major fields.

### Accelerated Programs for High School Students

High school students interested in earning college credit while still in high school should inquire about admission before graduating from high school. The High School Exceptional Ability program is described in greater detail in the *Undergraduate Admission* section of this Bulletin.

Students may also begin their college careers while still in high school by enrolling in independent study courses. The Independent Study Program is described in greater detail in the *University Extension* section of this Bulletin.

### Credit-by-Examination Programs

UK students may earn degree credit by successfully completing examinations described below.

**Proficiency Examination Program (PEP)**

The Proficiency Examination Program (PEP) of The American College Testing Program prepares tests in arts and sciences, business, criminal justice, education, and nursing. PEP tests may be recognized as appropriate credit for meeting degree requirements. Working with the Office of Admissions, colleges and departments determine appropriate cutoff scores, as applicable. The academic units also determine the amount of the awarded credit that will apply to the curricular requirements in each academic major.

Lower division credit in nursing may be awarded to students who are already registered nurses and who earn scores of 45 or higher on the following PEP tests: Fundamentals of Nursing (403); Maternal and Child Nursing, Associate Degree (453); Adult Nursing (554); Psychiatric/Mental Health Nursing (503).

For more information on PEP tests, contact the Counseling and Testing Center.

**Advanced Placement Program (AP)**

The University of Kentucky recognizes examinations of the College Board Advanced Placement Program offered by high schools throughout the nation. Currently, UK ranks among the top 200 schools in the U.S. which receive a large number of AP score results. A high school senior who wishes to have AP scores evaluated for academic credit or placement should have the results sent to the Office of Admissions. UK's code is **1837**.

Students who receive Advanced Placement credit for a course may apply this credit the same way credit earned by passing a course is applied. UK does not recognize College Board SAT II Subject Tests for placement purposes.

Academic departments have designated the current policy (see chart) for students who score 3 or higher on the Advanced Placement examinations. For subject areas marked with an asterisk (*), students are encouraged to submit examinations to the appropriate department for evaluation. No specific score guarantees placement or credit, but each examination is evaluated on its own merit. Each year a number of students receive credit or placement in these disciplines.

For more information on UK's Advanced Placement policy, contact:

**Office of Admissions**
**100 W. D. Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**
**(606) 257-2000**

### College Level Examination Program (CLEP)

UK participates in the national testing program of The College Board. The CLEP tests are divided into two categories: **General Examinations** and **Subject Examinations**.

The **General Examinations** at UK measure college-level achievement in two basic areas of the liberal arts: English composition and natural sciences. Both CLEP General Examinations may be recognized as appropriate credit for meeting degree requirements. Colleges and departments within the University, in consultation with the Office of Admissions and the Office of the Registrar, determine and publish appropriate cutoff scores. The amount of awarded credit that may be used in meeting curricular requirements is determined by the colleges. Scores are listed in the "Policy Guide for CLEP General Examinations" below.

The **Subject Examinations** cover specific material which is common to courses at many universities. UK has recognized the majority of CLEP Subject Examinations since 1972. Credit for University courses is awarded to students who

## University of Kentucky Policy

| AP Test | Score | Credit Awarded | Credit Statement |
|---|---|---|---|
| American Government | 4 | — | The Department of Political Science awards placement only, no credit. Exemption from PS 101 if in pursuit of a political science degree. |
| | 5 | PS 101 | 3 credit hours for PS 101 with a grade of P. |
| American History | 3 | HIS 108, 109 | 3 credit hours each for HIS 108, 109 with a grade of P. |
| Art History | 3 | A-H 106 | 3 credit hours for A-H 106 with a grade of P. |
| Art Studio* | | | |
| Biology | 4 or 5 | BIO 150, 152<br>BIO 151, 153 | Recommended for biology majors, preprofessional students or students who intend to take advanced courses in the life sciences. 3 credit hours each for BIO 150, 152 with a grade of P. 2 credit hours each for BIO 151, 153 with a grade of P. |
| | | **or**<br>BIO 104, 106<br>BIO 208; 105<br>BIO 107, 209 | 3 credit hours each for BIO 104, 106, 208; 1 credit each for BIO 105, 107; 2 credit hours for BIO 209 with a grade of P. |
| Calculus AB | 3 | MA 113 | 4 credit hours for MA 113 with grade of P. |
| | 4 or 5 | MA 113 | 4 credit hours for MA 113 with a grade of A. |
| Calculus BC | 3 | MA 113, 114 | 4 credit hours each for MA 113, 114 with a grade of P. |
| | 4 or 5 | MA 113, 114 | 4 credit hours each for MA 113, 114 with a grade of A. |
| Chemistry | 3 | CHE 105, 107 | 3 credit hours each for CHE 105, CHE 107 with grade of P. |
| | 4 or 5 | CHE 105, 107 | 3 credit hours each for CHE 105, CHE 107 with grade of A. |
| Computer Science | 3 | CS 101 | 3 credit hours for CS 101 with a grade of P upon successful completion of a PASCAL programming project assigned by the Computer Science Department. |
| Computer Science A | 3 | CS 121 | 4 credit hours for CS 121 with a grade of P. |
| | 4 or 5 | CS 121 | 4 credit hours for CS 121 with a grade of A. |
| Computer Science B | 3 | CS 122 | 4 credit hours for CS 122 with a grade of P. |
| | 4 or 5 | CS 122 | 4 credit hours for CS 122 with a grade of A. |
| Economics (micro) | 3 | ECO 201 | 3 credit hours for ECO 201 with grade of P. |
| | 4 or 5 | ECO 201 | 3 credit hours for ECO 201 with grade of A. |
| Economics (macro) | 3 | ECO 202 | 3 credit hours for ECO 202 with grade of P. |
| | 4 or 5 | ECO 202 | 3 credit hours for ECO 202 with grade of A. |

# Guide for Advanced Placement

| AP Test | Score | Credit Awarded | Credit Statement |
|---|---|---|---|
| English Literature/ Composition **or** English Language/ Composition | 3 | ENG 161 | 3 credit hours for ENG 161 with a grade of A. Automatic admission to ENG 105, regardless of ACT English score or SAT Verbal score. ENG 105 proficiency examination not required. (see *University Writing Requirement*). |
| European History | 3 | HIS 104, 105 | 3 credit hours each for HIS 104, 105 with grade of P. |
| French Language | 3 | FR 201 | 3 credit hours for FR 201 with grade of P. |
| | 4 or 5 | FR 201, 202 | 3 credit hours each for FR 201, 202. |
| French Literature | 3 | FR 304 | 3 credit hours for FR 304 with grade of P. |
| German Language | 3 | GER 201 | 3 credit hours for GER 201 with grade of P. |
| | 4 or 5 | GER 201, 202 | 3 credit hours each for GER 201, GER 202 with grade of P. |
| Latin | 3 | — | 6 credit hours for Latin at the 200 level upon completion of University Latin course at the 300 level or above. |
| | 4 or 5 | — | 6 credit hours at the 200 level and 3 credit hours at the 300 level upon completion of University Latin course at the 300 level or above. |
| Music* | | | |
| Physics B | 3 | — | The Department of Physics and Astronomy awards placement only, no credit. Exemption from PHY 211 and 213. |
| Physics C | 3 | — | The Department of Physics and Astronomy awards placement only, no credit. Exemption from PHY 231, 232, 241, 242. |
| Politics and Comparative Politics | 4 | — | The Department of Political Science awards placement only, no credit. Exemption from PS 210 if in pursuit of a political science degree. |
| | 5 | PS 210 | 3 credit hours for PS 210 with a grade of P. |
| Spanish Language | 3 | SPI 202 | 3 credit hours for SPI 202 with grade of P. |
| | 4 | SPI 210 | 3 credit hours for SPI 210 with grade of P. |
| | 5 | SPI 210, 310 | 3 credit hours each for SPI 210, 310 with grade of P. |
| Spanish Literature | 3 | SPI 202 | 3 credit hours for SPI 202 with grade of P. |
| | 4 | SPI 320 | 3 credit hours for SPI 320 with grade of P. |
| | 5 | SPI 320, 322 | 3 credit hours each for SPI 320, 322 with grade of P. |

*Examination is referred to the department. No specific score guarantees credit or placement.

obtain the listed scores on the appropriate Examinations, as listed in the "Policy Guide for CLEP Subject Examinations" below.

**International Baccalaureate Program**

The University accepts credit for course work completed through the International Baccalaureate Program. The individual department determines how the credit is applied, and the Office of Admissions works with the student to secure a review and assessment.

**Special Departmental Examinations**

Almost any course offered at the University is available for credit by special examination, regardless of whether a student has audited the course, is currently enrolled in it, or has studied it independently. These examinations are prepared and administered by the offering department, and are usually equivalent to a final examination. Students must be enrolled in good standing at UK. The examinations are offered without charge.

Undergraduate students requesting a special examination must apply in writing to the chairperson of the department that offers the course. Graduate students should apply to the director of graduate studies in the department offering the course. Applicants should include evidence that they are reasonably prepared for the examination.

More information about special examination credit appears in the *Academic Requirements* section of this Bulletin.

## University of Kentucky Policy Guide for CLEP General Examinations

1. **English Composition with Essay** – credit awarded for ENG 105 with scaled score of 450, as of May 1986 (scaled score of 560, 1978-April 1986)

2. **Natural Sciences** – credit awarded for BIO 103 with scaled score of 421

## University of Kentucky Policy Guide for CLEP Subject Examinations

| CLEP SUBJECT EXAMINATION | Scaled Score to Earn Credit | Equivalent UK Course | Credit Hours | Grade |
|---|---|---|---|---|
| **COMPOSITION AND LITERATURE** | | | | |
| American Literature | 53 or above | ENG 251, 252 | 6 | credit only |
| English Literature | 53 or above | ENG 221, 222 | 6 | credit only |
| **FOREIGN LANGUAGES** | | | | |
| College French-Levels 1 and 2 | 50-69 | FR 201 | 3 | credit only |
| | 70 or above | FR 201, 202 | 6 | credit only |
| College German-Levels 1 and 2 | 50-69 | GER 201 | 3 | credit only |
| | 70 or above | GER 201, 202 | 6 | credit only |
| College Spanish-Levels 1 and 2 | 50-54 | SPI 102, 201 | 7 | credit only |
| | 55-59 | SPI 102,201 | 7 | grade of B |
| | | SPI 202 | 3 | credit only |
| | 60-64 | SPI 102 | 4 | grade of A |
| | | SPI 201, 202 | 6 | grade of B |
| | 65 or above | SPI 102, 201, 202 | 10 | grade of A |
| **HISTORY AND SOCIAL SCIENCES** | | | | |
| American Government | 50 or above | PS 101 | 3 | credit only |
| American History I: | | | | |
| Early Colonization to 1877 | 48-59 | HIS 108 | 3 | credit only |
| American History II: | | | | |
| 1865 to the Present | 48-59 | HIS 109 | 3 | credit only |
| Introduction to Educational Psychology | 55 | EDP 548 | 3 | credit only |
| Introductory Psychology | 51 | PSY 100 | 4 | credit only |
| Principles of Macroeconomics | 50 | ECO 202 | 3 | credit only |
| Principles of Microeconomics | 50 | ECO 201 | 3 | credit only |
| Introductory Sociology | 53 | SOC 101 | 3 | credit only |
| Western Civilization I: | | | | |
| Ancient Near East to 1648 | 48-59 | HIS 104 | 3 | credit only |
| Western Civilization II: | | | | |
| 1648 to the Present | 48-59 | HIS 105 | 3 | credit only |

## University of Kentucky Policy Guide for CLEP Subject Examinations, cont.

| CLEP SUBJECT EXAMINATION | Scaled Score to Earn Credit | Equivalent UK Course | Credit Hours | Grade |
|---|---|---|---|---|
| **SCIENCE AND MATHEMATICS** | | | | |
| Calculus with Elementary Functions | 50 | MA 113 | 4 | credit only |
| General Biology | 50-59 | BIO 103 | 3 | credit only |
| | 60 or above | BIO 104, 106 | 6 | credit only |
| General Chemistry | 55 or above | CHE 105, 107 | 6 | credit only |
| **BUSINESS** | | | | |
| Principles of Management | 50 | MGT 301 | 3 | credit only |
| Introductory Accounting | 50 | ACC 201, 202 | 6 | credit only |
| Introductory Business Law | 50 | MGT 341 | 3 | credit only |
| Principles of Marketing | 50 | MKT 300 | 3 | credit only |

Additional information on taking CLEP examinations may be obtained from the Counseling and Testing Center, 201 Frazee Hall. Students should contact the Registrar's Office to inquire about receiving credit for any of the examinations.

**English Examination:** Students who have a standard score of 29 or above on the English section of the Enhanced ACT (560 or above on the SAT verbal score) may elect to take a special writing proficiency examination administered by the English Department's Writing Program. Students who pass this examination are eligible to fulfill the University Writing requirement by successfully completing ENG 105, Writing: An Accelerated Course. Students who do not pass must take the normal sequence of ENG 101-102. For more information, contact the Writing Program Office, 1221 Patterson Office Tower, University of Kentucky, Lexington, KY 40506-0027, (606) 257-7002.

### Program on Noncollegiate-Sponsored Instruction (PONSI)

Students, particularly those 25 years of age and older, may be eligible to receive credit for extra-institutional learning. The American Council on Education through its Program on Noncollegiate-Sponsored Instruction (PONSI) has evaluated over 2,000 courses sponsored by over 140 corporations, organizations, and agencies drawn from business, industry, and government. On the basis of PONSI evaluations, the University has established guidelines for awarding credit for college-level courses. The University recognizes these recommendations as appropriate credit for meeting degree requirements.

The University's colleges and departments determine the amount of credit that will apply to a student's curriculum. Information on PONSI appears in *The National Guide to Educational Credit for Training Programs.* For more information, contact the Office of Admissions.

## THE HONORS PROGRAM

The University of Kentucky Honors Program offers outstanding students, especially those interested in developing independent and critical thinking, a special program and a special identity within the framework of the larger institution. The Honors Program is an important part of the University's commitment to academic excellence in undergraduate education.

The Honors curriculum includes four seminars in the history of ideas, tracing the development of Western civilization from antiquity to the present, providing a sound basis for a liberal arts education. Juniors and seniors in the Honors Program may enroll in the Honors Proseminars, which vary each semester and explore multidisciplinary topics. Upperclass students also complete an independent project of research or artistic expression.

The Honors Program, its curriculum and special features are described in detail in the *Honors Program* section of this Bulletin.

## THE UNIVERSITY SCHOLARS PROGRAM

The University Scholars program offers students the opportunity and challenge of integrating their undergraduate and graduate or professional courses of study into a single, continuous program leading to both a baccalaureate and master's degree. The student's particular requirements will determine the amount of time needed to complete the program; however, the program can normally be completed in less time than that required in a conventional program.

### Admission to the Program

Applicants for the University Scholars program must meet the following admissions requirements:

1. The applicant must have senior standing (completed at least 90 hours of course work) and have completed all University Studies requirements. Students should apply at the end of their junior year.
2. The master's program should be in the field of the undergraduate major.
3. The applicant must have an undergraduate grade-point average of 3.5 or above in the major and 3.2 or above overall.
4. The applicant must provide evidence of superior scholarship in the proposed area of study. This may be a project, a term paper, or other creative endeavor that indicates superior achievement.
5. The applicant must take the Graduate Record Examination (GRE) before entering the program.

6. Follow the current application procedures for The Graduate School, subject to the above conditions. The applicant should include a letter of evaluation from the appropriate director of graduate studies indicating evidence of superior scholarship (see item 4 above). The application and supporting evidence will be reviewed by a committee appointed by the Dean of The Graduate School.

**Degree Requirements and Curriculum**

Students in the University Scholars program must meet these requirements:

1. The total number of credit hours for the combined program may be 12 fewer than the total required for both the bachelor's and master's degrees. (The requirements for the bachelor's degree are unchanged.)
2. Students should take no more than 16 credit hours per semester, unless they have express permission from the appropriate director of graduate studies and the Dean of The Graduate School.
3. Students must complete at least 36 hours of graduate level courses in the combined program, 15 credit hours of which must be in the 600 level or above for a Plan B master's degree. Students pursuing Plan A must complete at least 30 hours of graduate level courses in the combined program of which 12 credit hours must be at the 600 level or above. (Consult The Graduate School *Bulletin* for detailed information concerning Plan A and Plan B for master's degrees.)
4. Students must have an undergraduate and a graduate adviser. A jointly planned program must be prepared for each student.
5. In order to participate in the University Scholars program, a department must submit to The Graduate School a plan and illustrative examples of typical programs.

## DONOVAN SCHOLARS PROGRAM

The University of Kentucky has a long-standing interest in individuals of or nearing retirement age. In 1962, the Board of Trustees established the Council on Aging to serve as the focal point for programs for older persons. The council, now called the Donovan Scholars Program, is an integral part of the Sanders-Brown Center on Aging.

The Donovan Scholars Program sponsors a variety of education programs for older adults. One of the most outstanding is the Herman L. Donovan Senior Citizens Fellowship program (described below). The Writing Workshop for People Over 57 has been an annual event since 1967, attracting noted authors and participants from all over the world.

Other programs include a biweekly program series on a variety of topics; classes in music, art, radio drama, and physical fitness; Great Decisions; and the Donovan Volunteer Corps, a group serving educational needs of the campus and local community. Anyone over age 60 can participate in these noncredit courses and activities.

### The Herman L. Donovan Senior Citizens Fellowship Program

The fellowship provides an opportunity for any person age 65 or over, regardless of place of residence, to enroll for regular courses without paying fees. The fellowship is available at the Lexington campus and at each of the community colleges. Donovan Scholars may take courses for credit or audit for no credit. All prerequisites and entrance requirements are waived for auditors.

Donovan Scholars attend regular classes and participate in the many intellectual, social, and cultural programs which characterize the University.

For more information about the Donovan Fellowship, contact:

**Donovan Scholars Program**
**Ligon House**
**University of Kentucky**
**Lexington, KY 40506-0442**
**(606) 257-2656**

# LIBRARIES

The University of Kentucky Libraries support the educational programs of the University in teaching, research and service, and serve to promote the general culture. The libraries' collection contains more than 2.5 million volumes and currently receives over 27,000 periodical and serial titles, including government document serials. The social sciences and humanities collections are housed in the Margaret I. King Library. Specialized collections are housed separately in 14 other campus libraries, serving the disciplines of agriculture, architecture, art, biological sciences, business and economics, chemistry and physics, communications, education, engineering, geology, law, mathematical sciences, medical sciences, and music.

The University of Kentucky has been a depository for U.S. federal government publications since 1907. The King Library maintains these resources (except those related to agriculture and law), as well as official publications of Great Britain, Canada, the United Nations, the European Economic Community, Kentucky, and other states.

The library system has a collection of over 200,000 maps. General interest maps are located in the King Library Map Collection; geological maps are in the Geological Sciences Library.

The library system houses and services five million units of microform, including over one million technical reports from U.S. and foreign governments. UK Libraries receive 200 major U.S. and foreign newspapers, and a comprehensive collection of Kentucky newspapers.

The Division of Special Collections and Archives holds extensive collections of rare books, manuscripts, and photographs. Special Collections units include Audio-Visual Archives, University Archives, Modern Political Papers, Oral History, The Appalachian Collection, Family and Local History and King Library Press. Although the division's specialization is Kentuckiana, other large collections include: The Appalachian Regional Commission Library, the Cortot Collection of Musicology, a John Milton Collection, and the W. Hugh Peal Collection of English and American Romantic and Victorian Literature. The latter collection includes extensive holdings of letters, literary manuscripts, and first editions, and is one of the outstanding resources of its type in the country.

The library's on-line computer system provides catalog data base searching and circulation control. Users can also access bibliographic data bases such as ERIC (Educational Resources Information Center) and Medline (National Library of Medicine). In all, users have access to over 400 national and international data bases. Computer labs are maintained for student use.

All campus libraries offer a variety of computerized bibliographic and full-text search services. The Reference Department offers computer-assisted instruction to individuals, introductory orientation to the library for beginning students and in-depth presentations to classes of advanced students. Branch libraries also provide instructional services. Some library units and branches publish guides and brochures on the use of various library tools and services.

The library system has long been a member of the Center for Research Libraries in Chicago. This center maintains esoteric research material and current issues of a selected number of heavily used science and technology journals. Faculty and graduate students may borrow these materials through the Interlibrary Loan Department of King Library or through the libraries in law, medicine and agriculture.

UK Libraries hold membership in the Association of Research Libraries, an organization of the top American and Canadian research libraries. It is also a member of the Online Computer Library Center (OCLC), a computer-based system of shared cataloging that allows member libraries to make interlibrary loan requests online.



# CULTURAL OPPORTUNITIES

## Otis A. Singletary Center for the Arts

The Singletary Center for the Arts serves as the performance facility for the University as well as for many community and regional events. The Center includes a 1500-seat Concert Hall and a 400-seat Recital Hall, both designed for acoustical excellence.

The Center opened in the fall of 1979 and has hosted an average of 380 events annually, with 115,000 patrons attending. In addition to presenting almost all of the 175 annual performances by the School of Music faculty and students, the Center presents the University Artist Series, and is the home of many community arts organizations, including the Lexington Philharmonic, the Central Kentucky Youth Orchestra Society, the Guitar Society and the Lexington Singers. Renowned persons such as Isaac Stern, Henry Mancini, Terry Waite, and Bernard Shaw have appeared in the past several years. Many programs at the Center are free or offer discounts for students.

## Theatre

The Department of Theatre produces several staged works each year that offer a range of dramatic performances for the University and the community.

All University students are invited to audition for plays. Students may also participate in other theatre-related activities, such as scene, lighting, costume design, construction, promotion, and front-of-house management. Many similar opportunities are also available through the summer theatre program.

The Department of Theatre participates in the American College Theatre Festival, the Irene Ryan Acting Competition, the Kentucky Theatre Association, and the Southeastern Theatre Conference.

## University Concerts

The School of Music sponsors a variety of recitals and concerts throughout the year by faculty and students. Faculty musical ensembles include the Faculty Brass Quintet, the McCracken Wind Quintet, and the Concord Trio. Student organizations include the Wildcat Marching Band and Basketball Pep Band, Symphony Orchestra, the Symphonic Winds, the University Choristers and Chorale, the UK Jazz Ensembles, the Percussion Ensemble, Opera Theatre, and the Collegium Musicum.

Faculty recitals, faculty ensemble concerts, and concerts by student organizations are usually free to students, faculty, staff, and to the community.

## University Artist Series

The University Artist Series features five classical concerts by world-renowned musicians. The acclaimed series, sponsored by the Singletary Center for the Arts and the College of Fine Arts, offers audiences the highest standards of artistic excellence usually found in the major metropolitan art centers. Student tickets are sold at discount prices either singly or by subscription.

## The Central Kentucky Chamber Music Society

The Central Kentucky Chamber Music Society offers a series of concerts featuring outstanding chamber music ensembles of national and international reputation. Tickets are available singly or by subscription. A limited number of free tickets are available to students.

## The Lexington Philharmonic Orchestra

The Lexington Philharmonic Orchestra is conducted by George Zack and performs regularly in the Concert Hall of the Singletary Center for the Arts. The orchestra plays a varied repertoire and features outstanding guest soloists at each concert. Tickets are available singly or by subscription. A limited number of free tickets are available to students at the Singletary Center Ticket Office and the Student Center Ticket Office.

## Martin Luther King Jr. Cultural Center

The Martin Luther King, Jr. Cultural Center works to enhance the quality of life for African-American students, the University, and the community by promoting a better understanding of and appreciation for African-American culture and heritage. The Center provides a variety of cultural and educational activities throughout the year including lectures, workshops, seminars, art exhibits, theatre, music and dance. The Center maintains a collection of books, periodicals, audio and video tapes related to many diverse aspects of African-American culture.

The Center offers a relaxed but stimulating atmosphere, and strives to retain African-American students by helping make the campus a more comfortable, inviting environment.

The Center is located in 124 Student Center and is open Monday through Friday from 10:00 a.m. to 6:00 p.m.

## University Art Galleries

The University has four main art galleries. **The Center for Contemporary Art** in the Fine Arts Building presents a series of exhibitions each year, including group shows, special exhibitions in various media, works by major artists, and an annual faculty exhibition. These exhibitions feature painting, drawing, graphic arts, photography and sculpture, as well as experimental forms and media. **The Student Center Gallery** is run by a student board and offers a similar fare. **The Raymond Barnhart Gallery** in the Reynolds Building serves students and faculty in the art studio program. And the **Pence**

**Hall Gallery**, under the direction of the College of Architecture, combines exhibits of architectural interest featuring painting, drawing and sculpture.

## University Art Museum

The University Art Museum is one of the major art museums in the state and serves a regional audience of over 400,000 people in fifty Kentucky counties. Located in the Singletary Center for the Arts, the museum offers a wide variety of changing exhibitions and education programs. Included in its permanent collection of nearly 4,000 objects are 19th and 20th century European and American works, photographs, decorative arts, Italian baroque paintings, contemporary and old master prints, African and pre-Columbian sculpture and contemporary regional art. The museum offers training opportunities for work-study and experiential education students as well as undergraduate and graduate internships for a limited number of applicants each year. The museum is open noon to 5:00 p.m., Tuesday through Sunday (except University holidays). Admission is free.

## William S. Webb Museum of Anthropology

The William S. Webb Museum of Anthropology has been collecting, preserving, researching and interpreting material culture since its establishment in 1931. The primary aim is the material culture of a broad range of human populations, with particular emphasis on Kentucky's prehistoric peoples.

The exhibit facilities in Lafferty Hall interpret the museum collections and research for the University, school groups and the community. The permanent exhibit, "Cultural History of Kentucky," displays archaeological material recovered by Museum excavations.

The collections are used for research by faculty members, graduate and undergraduate students, and scholars from other institutions and countries.

The William S. Webb Museum of Anthropology is open to the public from 8:00 a.m. to 4:30 p.m., Monday through Friday (except University holidays). Admission is free.

# LIVING ACCOMMODATIONS

## APPLYING FOR HOUSING

The University's Housing Office processes housing applications and waiting lists, assigns rooms and undergraduate apartments, and notifies students of assignments.

Many students are disappointed when they do not obtain a University housing assignment due to late submission of the housing application. **It is recommended that the student apply for a housing assignment as soon as possible. Students should apply even before applying for admission to the University.**

Please note that applying for admission to the University and applying for University housing are **two separate processes**. Acceptance for one does not guarantee acceptance for the other. Also, applying for housing does not guarantee that you will be assigned housing. Usually, beginning freshmen who apply for housing early (**before mid-December**) can be reasonably sure that housing will be available when they enter school the following fall.

To obtain more housing information and to request a housing form, contact:

**University Housing Office**
**125 Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**
**(606) 257-1866**

## RESIDENCE HALLS

The University of Kentucky has 18 residence halls, providing single and double occupancy rooms for approximately 5,200 students, about one-fourth of the student population.

The residential setting at UK is intended to contribute to a student's education by providing a living/learning environment. UK's residence halls are the foundation upon which a solid college experience is built. Many current students believe that living in a residence hall is the best way to make friends, meet new people, and become involved in campus life. Studies indicate that overall, students who live on campus tend to have higher grade point averages than students living off campus.

UK's residence halls are staffed with professionally trained personnel and with resident advisers. The hall director and resident advisers assist in planning a variety of programs and in developing hall governments. Residents are encouraged to participate both within the hall and in the campus community.

All on-campus residents are represented by the Residence Hall Association, a group whose goal is to improve residence hall life by planning and directing social, educational and recreational programs, and by providing a unified voice for residents. The Residence Hall Association is a member of the National Association of College and University Residence Halls (NACURAH, INC.), enabling interested residents to attend regional and national leadership conferences.

### Room Assignments

Room assignments are determined by the date the completed housing application, first installment, and housing contract are received in the Housing Office. Students who are confirmed receive a residence hall or apartment assignment indicating the name of the residence hall and the room number.

If housing demand exceeds capacity, the University may offer **limited, temporary** living arrangements in a study room or a triple room until a permanent room assignment can be made. Each year, a number of housing recipients do not come to school, or come but do not stay, creating vacancies.

### Roommates

Students of the same gender may request their own roommates on the housing application. Two students who wish to share a room must indicate the other as the preferred roommate and request the same residence hall. Then, **both** applications must be mailed **in the same envelope**.

## RESIDENCE HALLS AND UNDERGRADUATE APARTMENTS

UK's residence halls have many attractive features. Housing rates include utilities, local telephone service, and furniture. All residence halls are staffed by hall directors and resident advisers. Residence halls provide convenient access to laundry facilities, game and television rooms, vending machines, lounges, study rooms and computer labs. Dining facilities are close to all areas of campus.

UK's campus covers many acres. Students and faculty refer to the three major areas of campus as "south campus," "north campus," and "central campus." UK's residence halls are located in all three areas. The 2,664-bed Blanding-Kirwan Complex, which includes two 23-story towers and eight three-story halls, is located on the south campus. All buildings in this complex are air-conditioned and have wall-to-wall carpeting throughout. The Commons, a central facility, contains study rooms, library, computer lab, a check-cashing service, a food court, and a convenience store.

Central campus is home to two residence halls (Donovan and Haggin), a playing field and a cafeteria. Central campus is close to classrooms for the sciences.

North campus features six residence halls (Blazer, Boyd, Holmes, Jewell, Keeneland, and Patterson), a restaurant, and proximity to the Student Center and classrooms.

### Women's Residence Halls

**Blazer Hall**, located on the north campus, houses 191 women. This air-conditioned residence hall has a library and music room. A cafeteria, grocery, and pizza company are located in Blazer Hall.

**Donovan Hall**, located on central campus, houses 336 women. The single beds can be converted to bunks or trundle

beds, and furniture can be rearranged. The Oak Room dining area is located on the ground floor of Donovan Hall.

**Blanding IV** and **Kirwan IV** are both part of the Blanding-Kirwan Complex. Each hall houses 166 women in air-conditioned, carpeted double rooms.

### Men's Residence Halls

**Haggin Hall**, with capacity for 559 men, is located on the central campus. Dining facilities are available in adjacent Donovan Hall. Haggin has a central lounge and recreation room, and is completely air-conditioned and carpeted. This building is the site of a 24-hour study lounge for central campus.

**Holmes Hall,** a four-story building on the north campus, houses 305 men. A vending area, laundry room, and library are located on the ground floor. Holmes also houses a 24-hour study area. Rooms are carpeted and contain wash basins.

**Kirwan I** is part of the Blanding-Kirwan complex and is air-conditioned and fully carpeted.

### Co-Educational Residence Units

In co-ed residence halls, men and women are assigned to separate floors in each hall and do not share common bathroom facilities. **Assignment to coed halls is by specific application only**. Students are encouraged to consult with their parents prior to making application for these halls.

**Blanding Tower, Blanding I, II, III** and **Kirwan Tower, Kirwan II, III** are part of the Blanding-Kirwan Complex on the south campus. Each tower houses 625 students; the low-rise dorms house 166 each. They are air-conditioned and fully carpeted.

**Kirwan II**, part of the Blanding-Kirwan complex, is UK's new Wellness Hall. It is equipped with a weight room, and offers special programming for the student who is especially health conscious.

**Boyd Hall**, on the north campus, houses 136 co-ed Honors Program students. It has a carpeted study room, a computer lab, a large recreation area, and a comfortable lobby. Rooms are carpeted and some rooms have wash basins.

**Jewell Hall**, located on north campus, is the smallest of all the housing units, accommodating 107 American and international students. Some residents reside in Jewell Hall during academic breaks (excluding summer). Jewell Hall is dedicated to building cross-cultural friendship and understanding. It has a large study area on the third floor and a formal lounge on the ground floor.

**Keeneland Hall**, located on north campus, houses 304 students, and has rooms arranged as suites (double rooms connected by a full bath). The residence hall also has a formal reception area and corridor study rooms.

**Patterson Hall,** located on north campus, is the oldest hall on campus, and is sponsored by the Honors Program. Patterson Hall residents celebrated its 90th birthday in 1993.

### Undergraduate Apartments

The **Greg Page Apartments** are situated on the southern edge of campus (across from Commonwealth Stadium) on a curving drive near a wooded residential area. The complex consists of 25 buildings, each with 8 two-bedroom apartments. The complex also contains a laundry facility and a University-operated convenience grocery store. Each two-bedroom apartment houses four undergraduate students of the same gender. Every apartment has its own exterior entrance, a living room, dining room, kitchen, bath, and is completely furnished. For more information or to apply for housing at Greg Page Apartments, contact:

**University Housing Office**
**125 Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**
**(606) 257-1866**

### Office of Residence Life

The Office of Residence Life provides a supportive living environment for resident students and aims to promote and encourage personal and community development. Each residence hall offers programs and activities such as faculty speakers, workshops, dances, musical presentations, films, and recreational games. Students are also encouraged to participate in community service projects, residence hall government, and campus events.

## RATES

The cost for living in University Housing is listed in the *Fees* section of this Bulletin, page 13.

### First Installment

The first installment of $100 must accompany the housing application. This installment, as well as subsequent payments, must be made by mail to the Office of Student Billing Services, 257 Student Center, University of Kentucky, Lexington, KY 40506-0030.

Students requesting a receipt should include a self-addressed, stamped envelope.

### Rate Changes

Rates are subject to change at any time before the beginning of the academic year, upon action by the Board of Trustees. Rates are normally established in May for the succeeding academic year.

### Mailing of Assignments

Housing assignments are **not** mailed to recipients until after the June 1 and December 1 cancellation deadlines.

### Cancellations and Refunds

Applicants must cancel the housing application in person or by letter to the University Housing Assignment Office. Partial refunds of the $100 first installment are as follows: cancellation postmarked before April 20-$90; April 20-June 1, $75; June 2 - August 1, $50; after August 1 (fall) or December 1 (spring), no refund.

Students dropped for academic reasons will be issued a $90 refund.

### After the semester begins:

For the regular semester (16 weeks), students living in the residence halls who withdraw from the University will be assessed a minimum charge of $100 for room and board through the first week. Students withdrawing after the first week will be assessed a charge computed at the rate of eight percent of the total semester charge for each week in residence through the twelfth week. Any fraction of a week will be considered a full week.

Students withdrawing from the residence halls to enter married student housing units will be assessed a charge for room and board at the rate of six and a quarter percent of the total semester charge for each week in residence. Any fraction of a week will be considered a full week.

## GRADUATE AND FAMILY HOUSING

The University has single-unit housing available to graduate students at the Cooperstown facility, Commonwealth Village, and at facilities on Rose Lane and Linden Walk. Meal plans are optional for these residents.

The Shawneetown housing facilities provide apartments for married students and their families. Apartments for married students and their families are also available at some units in Cooperstown and at Greg Page Stadium View apartments.

For further information on graduate and family housing, contact:

**Apartment Housing Office**
**Building C, Cooperstown**
**University of Kentucky**
**Lexington, KY 40506-0132**

## FOOD SERVICES

The University's Food Services is a system of campus restaurants designed to satisfy the food preferences and schedules of a diverse student body. Using the system is easy – just access one of two available accounts with the Student I.D. card. The two accounts are:

1. **The Diner Account**—this is the required account that all residence hall students must open with a minimum deposit. It can only be used in Food Services and requires a minimum deposit that will not be refunded.

2. **The Plus Account**—this account is optional and is more versatile than the Diner Account. Since the Diner Account doesn't always cover the average student's needs, the Plus Account supplements the Diner Account when those funds are depleted. Additionally, the Plus Account can be used at the laundry facilities in the residence halls and Greg Page Apartments, in vending machines, and at the University Bookstore and Kennedy Bookstore.

These accounts work like a checking account. A cash deposit is made at the beginning of the semester and purchases are deducted each time the account is used. The new account balance is displayed after each transaction.

**NOTE:** Deposits over the minimum are carried over from semester to semester. Students may supplement their accounts at any time by making deposits at Student Billing Services. Parents may request that all money deposited be used for food purchases only. The minimum deposit is subject to change upon action of the Board of Trustees.

## STUDENT PARKING AND CAMPUS BUS SERVICE

Students are required to have a valid parking permit or pass to park on campus during restricted hours. **E** and **EG** permit-controlled lots are restricted to employee permit parking between 5:00 a.m. and 4:30 p.m., Monday through Friday year-round. In addition, Administration Drive, the one-way portion of Patterson Drive, and parking areas accessed through Gate 2 and Gate 3, are restricted to holders of **E** permits between 4:30 p.m. and 7:30 p.m., Monday through Thursday while the University is in official session. Students attending classes after 4:30 p.m. Monday through Thursday will need an Evening Permit for selected parking lots. No permit is required for weekend parking in **E** and **C** lots. However, spaces reserved for people with disabilities, loading zones, parking meters, and reserved spaces are controlled 24 hours a day. If you are uncertain about when a particular parking lot is being controlled for permits, please contact the Parking Office. For a brief period at the beginning of the fall and spring semesters, students not having valid parking permits for controlled lots are restricted to park in the **K** permit areas at Commonwealth Stadium.

Commuter and residence hall parking permits are issued by student classification. Students holding permits from the 1994-95 academic year may renew their hang tags in July. Other eligible students may apply for fall 1995 permits through August 4. Permit applications received by August 4 will be issued according to classification (i.e., graduate, senior, junior, sophomore), and issued to students between August 14 and August 25. Those students not otherwise eligible for commuter or residential parking permits should obtain a **K** permit which is valid only at Commonwealth Stadium. Parking for students with disabilities is available near the residence halls and classroom buildings for students with valid UK disabled permits. Students requiring disabled parking should contact the Disability Resource Center, 2 Alumni Gym.

All commuter and residential students may ride the LexTran buses to and from central campus, residence halls and Commonwealth Stadium between 7:15 a.m. and 5:30 p.m., Monday through Friday. Students may also ride the Campus Area Transit System shuttle bus (CATS) which departs from the Virginia Avenue parking lot every 20 minutes between 7:30 a.m. and 5:10 p.m., Monday through Friday. Evening shuttle service is also provided from 5:30 p.m. to 1:00 a.m., Monday through Thursday for students who have evening classes or work. All bus service is free.

The Transportation Office has equipped the evening CATS bus with a cellular telephone for the benefit of students who work evening jobs, attend evening classes, or study late at the library. Students can call the driver direct to obtain schedule information or to make a special pick-up request. The driver will make every effort to accommodate reasonable requests.

For more information about student parking and bus service, contact the Parking Office (606) 257-5757 or the Transportation Office (606) 257-RIDE.

# STUDENT SERVICES AND ACTIVITIES

## DEAN OF STUDENTS OFFICE

The Dean of Students Office oversees many student organizations and assists individuals and groups in developing programs. Staff members are available to discuss personal, academic, and extracurricular concerns with students. The Dean of Students Office oversees the areas described below.

### University Discipline

University of Kentucky students are citizens of two communities—the academic community and the city of Lexington. All students are subject to institutional disciplinary procedures when offenses are committed against the University or its community of scholars. *The Code of Student Conduct* adopted by the Board of Trustees, effective August 16, 1994, sets rules for student behavior which are consistent with the goals and purposes of this academic institution and establishes procedures which insure equality and fairness in dealing with all students. While the University is a place where the search for truth is carried on through free inquiry, it is not a sanctuary for those who seek freedom from moral, social and legal obligations. As residents of Lexington, students have the same rights and responsibilities as other citizens.

### Fraternities and Sororities

The University of Kentucky hosts 25 national fraternities and 17 national sororities. The undergraduate members are primarily responsible for operating these groups, with the assistance of a house director, alumni and University advisers. The advisers are concerned with all areas of fraternity and sorority operations — rushing, pledging, scholarships, housing, finance, leadership, personal growth and University involvement.

Sororities affiliated with the National Panhellenic Council hold a formal rush period the week prior to school opening in the fall. This is followed by open membership selection throughout the year for candidates to fill available vacancies.

Fraternities affiliated with the National Interfraternity Council have an intensified rush week at the beginning of the school year. Open rushing takes place throughout the remainder of the school year.

Sororities and fraternities affiliated with the National Pan-Hellenic Council will announce individually their membership intake process during the semester. Pledging is not a prerequisite for membership.

Sororities and fraternities at the University of Kentucky follow the dictates of *The Code of Student Conduct* which prohibits student organizations from discriminating against any person due to race, color, or religious affirmation or belief.

The governing bodies for Greek life are the Interfraternity Council, the Panhellenic Council and Pan-Hellenic Council comprised of representatives from each group on campus. The Greek Activities Steering Committee programs Greek service activities and chapter recognition.

The Office of Fraternities and Sororities, the Interfraternity Council, the Panhellenic Council and the Pan-Hellenic Council are located in 575 Patterson Office Tower. For more information, call (606) 257-3151.

### Religious Affairs

While the University does not directly sponsor religious activities, it both welcomes and supports the diverse religious traditions and organizations on campus. A member of the Dean of Students Office staff coordinates religious affairs and assists many religious organizations through a campus ministry and student organizations. Religious organizations on campus include: Bahá'í, Baptist, Black Campus Ministry, Campus Crusade for Christ, Catholic Newman Center, Christian Student Fellowship, Church of Christ, Church of God, Episcopal/Anglican, Intervarsity Christian Fellowship, Jewish Student Association, Lexington Friends (Quaker), Orthodox Ministry, Presbyterian, United Methodist Student Center Wesley Foundation.

For more information contact the University Liaison, Dean of Students Office, 2 Alumni Gym, (606) 257-2754.

### Disability Resource Center

The Disability Resource Center provides many services for students with disabilities. These include notifying faculty members of needed accommodations, scheduling priority, screening applicants for accessible parking permits, and coordinating campus arrangements to meet individual student needs. The Center acts as a liaison with state rehabilitation agencies.

Two specialized programs, the Attendant Care Program and the Lexington Volunteer Recording Unit, are available to students. The Attendant Care Program provides attendants for students who need assistance with the activities of daily living. The Lexington Volunteer Recording Unit provides tape recordings for students with visual or learning disabilities.

All students with disabilities are urged to register with the Disability Resource Center and obtain information on the various types of assistance available to them. The office is located in 2 Alumni Gym. For more information, call (606) 257-2754.

### Campus Recreation

The Department of Campus Recreation offers wholesome physical activities and sports programs for students, faculty and staff.

Activities include intramural sports, club sports, co-recreational activities, special events, and leisure recreation. Individual, dual, and team sports competition are available. Teams are organized in the following divisions: residence halls, fraternities, sororities, independents, and faculty and staff.

The Seaton Center Complex has attractive, well-equipped indoor and outdoor facilities. The Lancaster Aquatic Center and the Coliseum Pool are available for recreational swimming during open hours.

For more information, contact the Department of Campus Recreation, 135 Seaton Center, (606) 257-2898. During evenings and weekends, call (606) 257-1497.

### Student Center

The Student Center is owned and operated by the University as a service to all members of the academic community. The facility provides various programs and services to students, faculty, and staff. The Student Center is a *community* center offering cultural, recreational, and organizational outlets for the University population.

While on campus, students can take in a movie at the theatre, browse through the University Bookstore, stop at the Sweet Shoppe, or relax with friends in one of several lounges. The staff and students at the Student Center aim to provide an atmosphere of social and intellectual interaction in an informal setting. Comments and suggestions from students are always welcomed.

For more information, call the Director's Office at (606) 257-5781.

### Student Organizations

Student organizations are an outgrowth of student interest and serve the needs of a variety of students. Many provide programs that supplement the classroom experience and extend into areas of service for the community. All provide learning and leadership training for participating students.

There are over 265 registered student organizations on the UK campus. These include government organizations, political organizations, social sororities and fraternities, honors and leadership organizations, recognition societies, departmental organizations, professional fraternities, and special interest groups such as the Black Student Union, Cosmopolitan Club, and various religious, athletic, and military groups. For more information regarding student organizations and campus activities, contact the Student Organizations Center, 106 Student Center, (606) 257-1099.

### Leadership Program

The Division of Student Affairs sponsors a variety of leadership programs to complement the academic experience. The **Emerging Leader Institute** provides first year and sophomore students with the opportunity to develop leadership skills and expand their understanding of the principles of leadership. Applications for the institute are available in the fall semester for this ten-week developmental course offered every spring.

Course components include structured experiences in critical and creative thinking, ethical, moral and values decision making, applied leadership styles, and developing mentor relationships. The institutes are selective in admission and participating students earn academic credit. For more information regarding leadership development opportunities, contact the Student Activities Office at (606) 257-1099 or (606) 257-8867.

## ACADEMIC OMBUD SERVICES

The Academic Ombud helps resolve academic disputes between students and faculty or administration. When students are unable to resolve grievances or complaints through usual means, the ombud may be able to expedite the process or advise the student about the proper procedures to follow. Problems include, but are not limited to, violation of students' academic rights, unfair teaching and grading practices, cheating and plagiarism, and discrimination and harassment. All cases are held in strict confidence.

The Office of Academic Ombud Services is open from 8:00 a.m. to 4:30 p.m. and is located in 109 Bradley Hall. For information, questions, or appointments, call (606) 257-3737.

## ATHLETICS

The University of Kentucky sponsors athletic teams in both men's and women's sports and is a member in the National Collegiate Athletic Association and the Southeastern Conference. The University fields representative teams in a variety of varsity sports: basketball, football, baseball, tennis, golf, track, soccer, swimming, and rifle for men; and basketball, golf, gymnastics, rifle, soccer, swimming, tennis, track and cross country, and volleyball for women. These various teams provide wholesome entertainment for the student body, faculty, staff, alumni, and general public. Students interested in joining a team should contact the head coach's office in the sport of interest.

The Athletics Association helps support the band, cheerleaders, and the Student Athletic Committee; aids the Kentucky High School Athletic Association by supplying facilities for district, regional and state tournaments in all sports; offers athletic scholarships for a number of student athletes competing in most of its major sports; and provides grants to the University of Kentucky for academic scholarships.

## CENTRAL ADVISING SERVICE AND TRANSFER CENTER

The mission of the Central Advising and Transfer Center is to be a comprehensive resource which enables students to realize their potential for academic and holistic growth and development. Specifically, the center is responsible for advising all undeclared undergraduates in the College of Arts and Sciences, transfer students, nondegree students, adult students who do not have a major, prelaw students, and others who are considering attending the University or changing their field of study. The center staff assists students in clarifying academic goals and requirements, and refers students as needed to appropriate campus and community resources.

The Central Advising and Transfer Center is located in 109 Miller Hall and offers individual advising appointments as well as some walk-in and evening hours. For more information, questions, or appointments, call (606) 257-3383.

## INTERNATIONAL AFFAIRS

The Office of International Affairs (OIA) provides leadership, coordination, and service to the University and the community in four areas: services to international students and scholars; counsel of American students about opportunities for study, work, and travel overseas; international research contracts and grants to offer overseas experiences to faculty and staff and to attract international students to UK; and internationalization of the curriculum, campus, and community.

### International Student and Scholar Services

International Student and Scholar Services (ISSS) is a primary resource for international students at UK. ISSS arranges the meeting of arriving international students at the airport, helps them find housing, presents a full orientation program, advises on immigration matters, houses a free English program, and maintains an emergency loan fund and limited scholarship aid. The office helps academic departments bring international scholars to UK. ISSS also counsels students on non-academic concerns, and sponsors both international student organizations and cross-cultural activi-

ties for internationals and Americans such as Cosmopolitan Club and the International Hospitality Program. ISSS is located on the first floor of Bradley Hall. For more information, call (606) 257- 2755 or (606) 257-1655.

**Participant Training Services**

Participant Training Services administers international grants and provides placement, advising, and administrative services for externally sponsored international students. The cost for these services is $300 per semester. Literature describing these services is available in 204 Bradley Hall. For more information, call (606) 257-3782.

**Development Contract Services**

The contracts and grants unit provides assistance throughout the University in preparing technical proposals for international contracts and grants. It also provides project management and implementation services for multi-college projects. For more information, call (606) 257-4067.

**Study Abroad Services**

Study Abroad Services provides information, counseling, and services for students interested in working, traveling, or studying abroad. UK offers summer, semester, and year study abroad programs in many countries. Study Abroad Services coordinates scholarship programs such as Deauville Exchange, English-Speaking Union Scholarships, Fulbright Graduate Scholarships, Heidelberg Scholarships, Marshall Scholarships, OIA Scholarships, and Rhodes Scholarships. Students can purchase International Student Identity Cards, the Youth Hostel pass, and the Eurail Pass from this office. The Study Abroad Library is located in 105 Bradley Hall. For more information, call (606) 257-8139.

**Community Relations**

A Community Liaison matches international students with K-12 teachers in the International Classroom program and initiates opportunities and responds to school and community requests for international programming. The Community Liaison is also executive director of Kentucky-Ecuador Partners of the Americas. The Community Liaison is located in 205 Bradley Hall. For more information, call (606) 257-8776.

**Peace Corps**

The Office of International Affairs has a grant from the U.S. Peace Corps for a returned Peace Corps Volunteer who provides information on Peace Corps programs, disseminates and processes applications, and conducts interviews. The office is located in 310 Bradley Hall. For more information, call (606) 257-8646.

**Other Functions**

Some other functions of the Office of International Affairs include negotiating new linkages with overseas institutions such as Metropolitan College in Malaysia and Royal Melbourne Institute of Technology in Australia, acting as Fulbright representative for faculty applications, hosting some foreign visitors, encouraging internationalization of courses in a variety of disciplines and new study abroad programs in so-called Third-World countries, and helping to initiate and implement such new ideas as in residence life, the Jewell Hall International Living and Learning Center and in curriculum, International Studies and World Regional/Foreign Language Concentrations.

For more information, contact the Office of International Affairs, Bradley Hall, University of Kentucky, Lexington, KY 40506-0058, (606) 257-4067, FAX (606) 323-1026.

## OFFICE OF MINORITY AFFAIRS

**Minority Affairs**

The Office of Minority Affairs functions to insure the participation of African-American citizens in all facets of university life. The office sponsors numerous programs including early intervention, community outreach, recruitment, and retention programs. The Office of the Vice Chancellor for Minority Affairs is composed of African-American Recruitment, Scholarships and Grants, Student Programming, Martin Luther King Jr. Cultural Center, Student Support Services, Learning Services Center, Access and Participation, and Minority Student College Awareness Program.

**African-American Student Recruitment**

The Director of African-American Recruitment communicates with high schools, community organizations and churches to identify prospective students for the University. The director informs students of UK's numerous opportunities for career and occupational development.

The African-American Recruiter is located in 522 Patterson Office Tower, (606) 323-6342.

**African-American Scholarships Office**

The director counsels African-American students on the types of financial aid available to finance their university education. The director administers the Resident Minority Scholarship/Grant Program, the Martin Luther King Jr. Scholarship, the Ralph J. Bunche Study Abroad Scholarship and the Vice-Chancellor's Academic Scholarship. The director works closely with the Office of Financial Aid to assure students the best financial aid package.

For questions regarding financial assistance for African-American students, contact the director at 563 Patterson Office Tower, (606) 323-6334.

**African-American Student Affairs**

Among the services available from the African-American Student Affairs are short-term motivational counseling, orientation, non-academic advising, problem-solving assistance with employment, housing, financial aid and overall adjustment to university life. The office assists students, faculty, and staff with the development of cooperative programs of educational, social, or cultural relevance to African-American students. Organizational and administrative assistance is also provided to the student organizations in the planning of projects and programs.

All currently enrolled African-American students and those seeking admission to the university should register with the Office of African-American Student Affairs, 557 Patterson Office Tower, (606) 257-5641.

**Martin Luther King Jr. Cultural Center**

The Martin Luther King Jr. Cultural Center functions to contribute to the quality of life for African-American students, UK, and the broader community by promoting a better understanding of and appreciation for African-American culture and heritage. A variety of educational and social activities are presented throughout the year including lectures, workshops, seminars, art exhibits, theater, music and dance. The center maintains a collection of books, periodicals, multi-media kits, records, and audio and video tapes which relate to the diversified aspects of African-American culture.

The center offers a relaxed but stimulating atmosphere, and strives to enhance the retention of African-American students by helping make the campus a more comfortable, inviting environment.

The center is located in 124 Student Center and is open Monday through Friday from 10:00 a.m. to 6:00 p.m.

### Learning Services Center

The Learning Services Center is a comprehensive academic support unit within the Minority Affairs Division. Its general goals are to aid African-American students in adjusting to university life, thereby increasing their chances for successful academic achievement.

Counselors work individually with students using the student's particular course material to sharpen study techniques in areas such as note-taking, reading, organizing information, memorization, critical/logical thinking, exam taking, writing papers, and time management. In addition, tutors are provided free for each course requested. Counselors monitor academic progress and are also available for consultation on personal or social issues.

The Learning Services Center is located at 660 S. Limestone, (606) 323-6347.

### Student Support Services

Student Support Services is an academic support program designed to increase retention and graduation rates. The program provides academic support, as well as cultural and social adjustment activities. Services include free tutoring, supplemental instruction/cooperative learning in mathematics and science, writing assistance, study groups, instruction in study skills, academic planning and counseling, and also, cultural and social activities. These services are designed to serve the needs of students who are "first generation" college students, have an economic need, or have a disability.

For more information, stop by 103B Alumni Gym or call (606) 257-9797.

### Access and Participation Component of PRISM

The Office of Minority Affairs is host to the Access and Participation Component of the Partnership for Reform Initiatives in Science and Mathematics (PRISM). This component will address the under-representation of women, minorities, people with disabilities and economically-challenged people in science and mathematics.

This component is currently working to develop a statewide strategic plan to increase the number of students from these groups in pre-college courses and in professional programs based in science, mathematics and education.

For additional information, contact Ms. Bessie Guerrant, 101 Alumni Gym, (606) 257-1450.

### Minority Student College Awareness Program

The Minority Student College Awareness Program is comprised of several early intervention programs focused on preparing African-American students for success in post-secondary education institutions. In addition to UK, programs are hosted at Eastern Kentucky University, Kentucky State University, Lexington Traditional Magnet School (YMCA Black Achievers Seventh/Eighth Cluster) and Winburn Middle School (Realizing Academic Potential). Since the passing of the Kentucky Education Reform Act (KERA), and the inclusion of Kentucky in the National Science Foundations' Statewide Systemic Initiative-Partnership for Reform Initiatives in Science and Mathematics (PRISM), the entire staff has been planning and presenting instruction which combines the MCAP goals with KERA and PRISM. Each program integrates a focus on mathematics along with classes in science, African-American history, foreign language, writing, language arts or communications.

## PROFESSIONAL SERVICES

### University Health Service

The University has a comprehensive health care program for all UK and Lexington Community College students. Located in the Medical Plaza/Kentucky Clinic on Rose Street across from the University Hospital, the University Health Service provides outpatient medical and mental health services. The **Medical Service** provides consultation and treatment for illnesses and injuries, using a broad range of primary care and preventive medicine disciplines. The **Mental Health Service** assists students with personal and emotional problems. Student health records are strictly confidential and can be released only with the student's signed authorization.

The regular clinic hours are 8:00 a.m. to 4:30 p.m., Monday through Friday, and 9:00 a.m. to 11:00 a.m. on Saturday. After hours, urgent care is available at the University Hospital Emergency Room. However, the University of Kentucky and the University Health Service assume no responsibility for the cost of after-hours care.

Payment of the mandatory registration fee by full-time students entitles them to use the services provided by the Health Service during the regular fall and spring semester. Part-time students may use the health service on a fee-for-service basis or may pay a semester health fee during the first two weeks of the semester. In summer, the University Health Service remains open, and is available to any student who pays the summer health fee, or on a fee-for-service basis.

The University Health service does **not** cover the expense of referrals, hospitalization, after-hours care, accident care, and surgical services. University of Kentucky Health Service, University Hospital and other University of Kentucky Medical Center programs assume no responsibility of liability for medical expenses incurred by students beyond those covered by the University Health Service. We recommend that all students carry health insurance. As a service to students who need **health insurance**, the University of Kentucky makes available a group plan. Students entering in the fall receive information regarding the plan in late July. Other students may obtain information by contacting the University Health Service, University of Kentucky, B-163 Kentucky Clinic, Lexington, KY, 40536-0284, (606) 323-5823, ext. 230.

For questions or further information, call (606) 323-5823.

### University Counseling and Testing Center

The University Counseling and Testing Center has a staff of trained psychologists and counselors whose primary function is to help UK students with personal concerns, career decision-making and academic success skills. Individual counseling is available to assist students with adjustment to college life, relationship difficulties, career/major choice, feelings of depression or anxiety, low self esteem, life transitions, alcohol/substance use, problems in the family, and/or ineffective study skills. In addition, counseling groups led by trained therapists are organized each semester and address personal growth issues, interpersonal skills and a variety of other topics. All interviews are confidential. Individual testing and inventories of personality, career interests, and learning styles may be used to aid in self-understanding and to improve academic efficiency. Testing is available only upon referral by a center staff counselor.

The Learning Skills Program offers class, group and individual help in reading and learning skills on a non-credit basis. The Program offers several sections of the Master Student

Program each semester. This twelve-hour course introduces the student to effective learning and study strategies that increase the chances of achieving academic success. The course costs $35. The Tutoring Service provides a list of faculty-recommended tutors who charge by the hour.

The Counseling and Testing Center maintains an active outreach program, offering workshops and lectures to students, faculty and staff on a variety of mental health topics. The professional staff is also available to faculty, staff and departments for consultations regarding students, personnel or programs. There is no charge for consultations or outreach presentations.

The services of the Counseling and Testing Center are available without charge to students enrolled for at least six semester hours at UK or at Lexington Community College. Students enrolled in graduate and professional programs at the University of Kentucky are also eligible. Faculty and staff enrolled in **credit** classes are eligible for academic counseling only. For an appointment, call (606) 257-8701 between 8:00 a.m. and 4:30 p.m., Monday through Friday. Referral from another campus agency is not necessary. The Counseling and Testing Center is located in 301 Frazee Hall.

### University Career Center

The University Career Center provides numerous career-related services to help students and alumni find employment opportunities. Career advisers assist students with assessment of individual skills and life/work values, career exploration, resume writing, interviewing techniques, job hunt strategies, and in identifying job vacancies and salary averages. The center serves as a credential repository and mailing service. The center also provides information on summer and part-time employment opportunities.

The Career Library at the center houses information to assist students in their career decisions and job placement. Throughout the year, the Center conducts workshops and seminars on topics such as resume writing, interviewing techniques, computerized career services, hidden job markets, and effective job search strategies.

Students who are within two semesters of graduation and alumni seeking employment may schedule on-campus interviews with representatives of various businesses, industries, government agencies, and educational institutions.

Seniors and postgraduate students are encouraged to register for full-time employment opportunities. Students seeking career-related summer employment should register during the fall semester of their sophomore and junior years.

The University Career Center offers career services to students in all majors and academic disciplines. Interested individuals are encouraged to drop by the center or call (606) 257-2746 for an appointment. The University Career Center is located in 201 Mathews Building.

### TRANSCRIPT SERVICES

Students may purchase official copies of transcripts of their academic record in the Office of Transcript Services.

The current charges for transcripts are $3.00 per copy for currently enrolled students and $4.00 per copy for previously enrolled students. (Fees are subject to change.) Special pick-up service is available (except during the beginning or end of a term) for $8.00 per copy.

Students may view their transcript at no charge. Students must present proper identification.

No transcript will be released without the proper written authorization from the student.

No transcript will be released if:

- no payment is received;
- the student has been declared financially delinquent to the University of Kentucky; or
- the student does not present the proper identification (see section on *Confidentiality of Student Records* on page 1 of this Bulletin.)

The Office of Transcript Services is located in the Registrar's Office and is open Monday through Friday from 8:00 a.m. to 4:30 p.m. Address transcript requests to:

**University of Kentucky Registrar**
**10 Funkhouser Building**
**Attention: Transcripts**
**Lexington, KY 40506-0054**
**(606) 257-3671**

# GUIDE TO UNIVERSITY OFFICES

| WHAT | WHO TO SEE | WHERE | PHONE |
|---|---|---|---|
| **Absences** | | | |
| Reporting prior to | Instructor | | |
| Reporting following | Dean of Students Office | 513 POT | 257-3754 |
| | Instructor | | |
| Due to illness | Instructor | | |
| Emergency notification | Dean of Students Office | 513 POT | 257-3754 |
| Hospitalization | Dean of Students Office | 513 POT | 257-3754 |
| **Accident** | | | |
| Auto (on campus) | University Police | 305 Euclid Ave. | 257-1616 |
| Auto (off-campus) | Metro Police | | 911 |
| Injury | Student Health Service | B163 Kentucky Clinic | 323-5823 |
| | University Medical Center | Emergency Room | 323-5901 |
| Emergency (on campus) | University Police | 305 Euclid Ave. | 333 |
| (off-campus) | Metro Police | | 911 |
| **Activities, Student** | | | |
| Programming bodies | Student Activities Board | 203 Student Center | 257-8867 |
| | Student Government | 120 Student Center | 257-3191 |
| Activities available | Student Organizations Office | 106 Student Center | 257-1099 |

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|---|---|---|---|
| **Athletics** | | | |
| Intramural and Extramural | Director, Campus Recreation | 145 Seaton Center | 257-2898 |
| Varsity – Men | Director | Memorial Coliseum | 257-1916 |
| Varsity – Women | Director | Memorial Coliseum | 257-6046 |
| Tickets | | | |
| Student | Dean of Students Office | 513 POT | 257-3754 |
| Other | Ticket Office | 111 Memorial Coliseum | 257-1818 |
| **Attendance** | | | |
| (see Absences) | | | |
| **Automobile** | | | |
| (see Traffic) | | | |
| **Check Cashing** | | | |
| Main Campus | Student Billing Services | 257 Student Center | 257-4570 |
| Blanding-Kirwan | Student Billing Services | 316 Commons | 257-3180 |
| Medical Center | Financial Services | H102 Hospital | 323-5601 |
| **Counseling** | | | |
| Academic | Academic Adviser | | |
| | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| Activities | Student Activities Office | 203 Student Center | 257-8867 |
| | Dean of Students Office | 513 POT | 257-3754 |
| Financial | Director of Financial Aid | 127 Funkhouser Bldg. | 257-3172 |
| Health | Student Health Service | B163 Kentucky Clinic | 323-5823 |
| Personal | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| | Dean of Students Office | 513 POT | 257-3754 |
| | Student Mental Health Services | B163 Kentucky Clinic | 323-5511 |
| Vocational | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| | Career Planning and Placement Service | 201 Mathews Bldg. | 257-2746 |
| Women | Support Services | 109 Miller Hall | 257-3383 |
| **Disabled, Services for** | Disability Resource Center | 2 Alumni Gym | 257-2754 |
| **Dormitories** | | | |
| (see Housing) | | | |
| **Drug Information** | | | |
| | Student Health Service | B163 Kentucky Clinic | 323-5823 |
| | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| Emergency Treatment | University Medical Center | Emergency Room | 323-5901 |
| **Employment** | | | |
| Career Placement | Career Planning and Placement Services | 201 Mathews Bldg. | 257-2746 |
| Student (part-time) | Student Employment | 252 Maxwell St. | 257-3843 |
| Teacher Placement | College of Education | | 257-1857 |
| Work-Study | Student Financial Aid | 104 Taylor Education Bldg. | 257-3172 |
| **Facilities** | | | |
| Academic space | Registrar's Office | 12 Funkhouser Bldg. | 257-4903 |
| Adena Park | Campus Recreation | 135 Seaton Center | 257-3728 |
| Agriculture Science Auditorium (Seay Auditorium) | Management Operations | N-3 Ag. Science N. Bldg. | 257-7567 |
| Agriculture Sci. South Aud. – B52 | Registrar's Office | 12 Funkhouser Bldg. | 257-4903 |
| Alumni House | Alumni Association | King Alumni House | 257-8905 |
| Alumni Gym | Campus Recreation | 145 Seaton Bldg. | 257-2898 |
| Carnahan House (restricted) | Carnahan Conference Center | 1701 Newtown Pike | 254-1060 |
| Haggin Field | Campus Recreation | 145 Seaton Center | 257-2898 |
| Medical Center Auditorium | Hospital Adm. | N106 Medical Center | 323-5767 |
| Memorial Coliseum | Athletics Association | 200 Memorial Coliseum | 257-8000 |
| Memorial Hall | Student Center | 209 Student Center | 257-5781 |
| Parking lots and structures | Student Center | 209 Student Center | 257-5781 |
| Patterson Office Tower (18th Floor - restricted) | Business Affairs | 203 Gillis Bldg. | 257-1841 |
| Singletary Center for the Arts | Coordinator | 126 Center for the Arts | 257-1706 |
| Student Center | Student Center | 209 Student Center | 257-5781 |
| University grounds | Student Center | 209 Student Center | 257-5781 |
| **Fee Payment** | Student Billing Services | 257 Student Center | 257-3406 |
| **Financial Aid** | Student Financial Aid Office | 127 Funkhouser Bldg. | 257-3172 |
| **Fraternities** | Fraternity Adviser | 575 POT | 257-3151 |
| **General Information and Assistance** | Dean of Students Office | 513 POT | 257-3754 |
| **Graduation Ceremonies** | Human Resources | 123 Scovell Hall | 257-6314 |
| **Health Fee** | | | |
| Payment | Student Billing Services | 257 Student Center | 257-3406 |
| Information | Student Health Service | B163 Kentucky Clinic | 323-5823 |
| **Housing** | | | |
| Applications and assignments (undergraduates) | Housing Office | 125 Funkhouser Bldg. | 257-1866 |
| Graduate and Family | Auxiliary Services | Cooperstown C Bldg. | 257-3721 |
| Greg Page Stadium View Apts. | Housing Office | 125 Funkhouser Bldg. | 257-1866 |
| Payment of fees | Student Billing Services | 257 Student Center | 257-3406 |
| Residence Halls Programming | Residence Life | 537 POT | 257-4783 |
| Resident Advisers | | Residence Halls | |
| **Identification Cards** | | | |
| Photos | Student ID Office | 107 Student Center | 257-1378 |
| Lost | Student ID Office | 107 Student Center | 257-1378 |

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|---|---|---|---|
| **Insurance** | | | |
| Student Health | Student Insurance Office | 163 Kentucky Clinic | 323-5823 |
| **Loans** | Student Financial Aid | 128 Funkhouser Bldg. | 257-3172 |
| **Master Calendar** | | | |
| Campus Events | Student Activities Board | 203 Student Center | 257-8867 |
| Academic | Registrar's Office | 11 Funkhouser Bldg. | 257-3161 |
| **Meal Cards** | | | |
| Contracts | Housing Office | 125 Funkhouser Bldg. | 257-1866 |
| Payment | Student Billing Services | 257 Student Center | 257-3406 |
| **Medical Services** | | | |
| General Information and main telephone number | Student Health Services | Kentucky Clinic Bldg. | 323-5823 |
| Illness or accident | Student Health Services | B163 Kentucky Clinic | 323-5823 |
| Drug information | Student Health Services | B163 Kentucky Clinic | Ext. 281 |
| Contraception Services | Student Health Services | B163 Kentucky Clinic | Ext. 280 |
| Billing | Student Health Services | B163 Kentucky Clinic | Ext. 233 |
| Insurance | Student Health Services | B163 Kentucky Clinic | Ext. 230 |
| Administrator | Student Health Services | B163 Kentucky Clinic | 323-5823 |
| Personal Counseling | Student Health Services | B163 Kentucky Clinic | 323-5511 |
| **Minority Affairs** | | | |
| Vice Chancellor | | 563 POT | 257-1991 |
| African-American Student Affairs | African-American Student Affairs | 557 POT | 257-5641 |
| Scholarships | Student Fiscal Affairs | 563 POT | 323-6334 |
| Learning Services | Learning Services Center | 660 S. Limestone St. | 323-6347 |
| **Organizations and Clubs** | Student Organizations | 106 Student Center | 257-1099 |
| **Orientation** | Registrar's Office | 12A Funkhouser Bldg. | 257-3256 |
| | Dean of Students Office | 518 POT | 257-6597 |
| **Postal Service** | University Post Office | Basement, Classroom Bldg. | 257-6358 |
| **Publications** | | | |
| Kernel | Kernel Office | 026 Grehan Journalism Bldg. | 257-2871 |
| Kentuckian | Kentuckian Office | 026 Grehan Journalism Bldg. | 257-4005 |
| Student Code | Dean of Students Office | 513 POT | 257-3754 |
| **Religion** | | | |
| Student religious organizations | University liaison | 2 Alumni Gym | 257-2754 |
| **Residence Halls** | | | |
| (see Housing) | | | |
| **Scholarships** | | | |
| Financial Aid | Student Financial Aid | 127 Funkhouser Bldg. | 257-3172 |
| Merit | Office of Admissions | 211 Funkhouser Bldg. | 257-4198 |
| Minority | Minority Affairs | 563 POT | 323-6334 |
| Departmental | Dean of College | | |
| **Social Functions** | | | |
| (see Activities) | | | |
| **Sororities** | Sorority Adviser | 575 POT | 257-3151 |
| **Student Government** | Student Government Office | 120 Student Center | 257-3191 |
| **Study Skills** | Counseling and Testing Center | 204 Frazee Hall | 257-8701 |
| | UK 101 | 518 POT | 257-6597 |
| **Testing** | | | |
| Aptitude | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| Personality | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| Vocational | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| University Testing Program | Counseling and Testing Center | 201 Frazee Hall | 257-8703 |
| **Tickets** | | | |
| Athletic - General | Ticket Office | 111 Memorial Coliseum | 257-1818 |
| Athletic - Student | Dean of Students Office | 513 POT | 257-3754 |
| Arts | Singletary Center for the Arts | 126 Singletary Center | 257-4929 |
| Lexington Philharmonic | Lexington Philharmonic | 103 Student Center | 257-8427 |
| Student Center | Ticket Office | 106A Student Center | 257-1378 |
| Theatre | Guignol/Briggs/Workshop | 106 Singletary Center | 257-4929 |
| **Traffic** | | | |
| On Campus | | | |
| Accidents | University Police | 305 Euclid Ave. | 257-1616 |
| Regulations | Human Resource Services | 305 Euclid Ave. | 257-5757 |
| Violations | Human Resource Services | 305 Euclid Ave. | 257-4998 |
| Parking permits | Human Resource Services | 305 Euclid Ave. | 257-5757 |
| Emergency | University Police | 305 Euclid Ave. | 333 |
| Off Campus | Metro Police | | 911 |
| **Tutoring** | Counseling and Testing Center | 301 Frazee Hall | 257-8701 |
| | Student Government Association | 120 Student Center | 257-3191 |
| | Learning Services Center | 660 S. Limestone St. | 323-6347 |

# ACADEMIC REQUIREMENTS

Certain conditions concerning the number and level of courses required, the patterns they must follow, the amount of time to be spent as a full-time student, grades and conduct have been established by the University Senate for all University of Kentucky students who are pursuing a degree. Those which relate to academic requirements are listed below. Others will be found in the University Senate Rules, pertinent portions of which are printed in the booklet *Student Rights and Responsibilities*, which is available to all students through the Dean of Students Office.

## STUDENT LOAD

With the exceptions noted below, the maximum load to be carried during any semester by any student in an undergraduate college (including residence and correspondence courses) is 19 credit hours. The 19 credit hour limit applies to courses taken on an audit basis as well as other courses.

The maximum allowable load to be carried during any summer term for undergraduate students (including residence and correspondence courses) is 9 credit hours in the eight-week summer session and 4 credits in the four-week intersession.

Students may be enrolled in a maximum of nine credit hours of classes meeting concurrently during an eight week session. For this purpose, a course meeting for a four-week period during the eight-week session must be counted double. Thus a student may enroll in two consecutive four-week (three credit hours) classes plus one eight week class, or as many as three eight week (three credit hour) classes. A student would not, however, be able to enroll in two four-week (three credit hour) classes meeting concurrently.

A student may be permitted by the dean of his or her college to carry such extra credit hours as in the dean's judgment, based upon the student's past performance, the student can complete successfully.

A student on academic probation can take no more than 15 credit hours in a semester, 3 credit hours in the four-week intersession, or 7 credit hours in the eight-week session.

Students in the combined Bachelor's/Master's degree program (University Scholars program) should not take more than 16 credit hours per semester. Permission to exceed that number must be given by the Director of Graduate Studies and the Dean of The Graduate School.

The professional colleges and The Graduate School may set lower maximum loads which are consistent with their degree requirements.

The maximum allowable load to be carried during any summer term for graduate students is 9 credit hours in the eight-week summer session and 4 credit hours in the four-week intersession. The maximum load for graduate students in any combination of the four- and eight-week sessions is 12 credit hours.

A student may be registered simultaneously at the University of Kentucky or a community college and at another institution only with the approval of the dean of the college in which the student is registered at the University of Kentucky or the community college, the credit hours obtained at the other institution being considered a part of the student's maximum load. If the simultaneous registration has not been authorized, the transfer of credit from the other institution may be denied.

## CLASSIFICATION

A student in any undergraduate college is classified by the University Registrar as a sophomore upon completion of 30 credit hours, a junior upon completion of 60 credit hours, and a senior upon completion of 90 credit hours.

A law student is classified as a second-year student upon completion of 24 credit hours and as a third-year student upon completion of 53 credit hours. However, a student is not classified as a second-year student until that student has been in residence for at least two semesters, nor as a third-year student until that student has been in residence for at least three semesters.

A pharmacy student is classified as a second-year student upon completion of 28 credit hours and as a third-year student upon completion of 56 credit hours.

Credit granted by examination is included in determining a student's classification.

## GENERAL MARKING SYSTEM

The general marking system uses a series of letters, to which are assigned grade-point values. The system is based neither on an absolute numerical system nor on a distribution curve, but on the following descriptions:

**Grade A** represents exceptionally high achievement as a result of aptitude, effort, and intellectual initiative. It is valued at four grade points for each credit hour.

**Grade B** represents a high achievement as a result of ability and effort. It is valued at three grade points for each credit hour.

**Grade C** represents average achievement. It is valued at two grade points for each credit hour.

**Grade D** represents the minimum passing grade (not to be used for graduate students). It is valued at one grade point for each credit hour.

**Grade E** represents unsatisfactory performance and indicates failure in the course. It is valued at zero grade points and zero credit hours. A student receiving this grade can obtain credit in the course only by repeating the entire work of the course in class, or by special examination in accordance with the procedures outlined under Special Examinations. In rare cases in which undue hardship is involved in repeating the work in class, the dean of the college in which the student is enrolled may approve repeating the work by correspondence.

**Grade F** represents failure in a course taken on a pass-fail basis. It is valued at zero (0) grade points and zero (0) credit hours.

**Grade I**—incomplete—means that part of the regularly assigned work of the course remains undone. It is given only when there is a reasonable possibility that the student can complete the work within the allowable period of time for removal of an **I** grade and that a passing grade will result from

completion of the work. Except under exceptional circumstances, the student will initiate the request for the **I** grade. An **I** grade will not be given when the student's reason for incompleteness is unsatisfactory to the instructor.

A grade of **I** must be replaced by a regular final letter grade not later than 12 months from the end of the academic term in which the **I** grade was awarded or prior to the student's graduation, whichever occurs first. In the event the grade of **I** is not replaced by a regular final letter grade within the allowable period, the University Registrar shall change the **I** grade to a grade of **E** on the student's permanent academic record and adjust the student's grade-point standing accordingly. A graduate who had an **I** grade on his or her academic record at the time of graduation (and which grade was subsequently changed to an **E** by the Registrar) may be allowed a maximum of 12 months following the end of the term in which the course was taken to satisfactorily complete the course and receive a grade change. If the instructor is not available, the department chair or dean of the college may petition the Chair of the Senate Council to extend the **I** grade.

For each **I** grade assigned, the instructor shall complete an appropriate file record on a standard form provided by the University Registrar, which shall include the following: (a) the name of the student; (b) the course number and hours of credit; (c) semester and year of enrollment; (d) signature of the instructor; (e) a brief statement of the reason(s) for recording the incomplete; (f) specific instructions on how alternate grades on the work to be completed will affect the final grade; (g) the specific time requirement (not to exceed 12 months) set by the instructor for removal of the **I** grade and consequences of not removing the **I** grade; and (h) signature of the student, if feasible.

The instructor shall provide a completed copy of this record to the student and the department chair at the time the **I** grade is reported.

The term *student* in this context excludes only students in The Graduate School and the Colleges of Medicine and Dentistry.

**Grade P** represents a passing grade in a course taken on a pass-fail basis. It may also be assigned by the University Appeals Board in cases involving a violation of student academic rights. Credit hours successfully completed under this grade will count towards graduation but will not be used in calculating grade point averages.

**Grade N** represents a temporary grade to be submitted for students who have been entered by the Registrar into official class rolls but have never attended class and who have not officially withdrawn. The Registrar shall remove their names from the official class roll and the student's enrollment in the class shall not be recorded in the student's official academic record. (As a temporary mark, **"N"** carries no credit hours or grade points).

**Grade S** may be recorded as a permanent mark in courses carrying *no* academic credit. This grade may not be given to a student who has done unsatisfactory work or to one who has failed to do a reasonable amount of work. It is valued at zero (0) grade points and zero (0) credit hours.

**Grade W**—withdrew—shall not be given unless the student withdraws officially or is assigned by the University Appeals Board. The University Appeals Board may assign a **W** in cases involving a violation of student academic rights. It is valued at zero (0) grade points and zero (0) credit hours. No grade will be recorded for a student who officially withdraws or is dropped from a class during the first three weeks of a semester (or a proportionate amount of time in the summer term or other courses of less than a full semester's duration). Students who withdraw after these dates or who are dropped from class shall be given a grade of **W** as reported by the instructor of a class.

**Grade AU** represents a completion of a course attended on an audit basis. It is valued at zero (0) grade points and zero (0) credit hours.

**Grade IP**. The grade **IP** may be recorded for students in zero-credit courses if at the end of a semester the student, because of the nature or size of the project, has been unable to complete the course. The project must be substantially continuous in its progress. When the work is completed, a final grade will be substituted for the **IP**. This grade may not be given to a student who has done unsatisfactory work or to one who has failed to do a reasonable amount of work. It is valued at zero (0) grade points and zero (0) credit hours.

**Official Withdrawal from a Course:** Any student may withdraw from any class (except for those used to meet the University Writing requirement) during the withdrawal period which is defined as:

a. end of the ninth week for fall or spring semester;

b. third day of the fifth week for eight week summer session;

c. second day of the third week for four week summer session.

In order to withdraw, the student must submit a completed withdrawal form to his or her dean. The dean shall report the withdrawal to the University Registrar. Any student withdrawing during the first three weeks of the course in the fall or spring semester (or a proportionate amount of time in the summer term or other courses of less than a full semester's duration) shall be removed from the class roll, and no grade or record of enrollment shall appear on the student's transcript. Students who withdraw during the remaining portion of the withdrawal period will receive a grade of **W** which will appear on their transcripts. A student may withdraw from a class during the last half of the term upon approval of a petition certifying urgent nonacademic reasons including but not limited to: illness or injury of the student; serious personal or family problems; serious financial difficulties.

Before acting on such a petition, the dean will consult with the instructor of the class. If such a petition is approved by the dean of the student's college, the dean shall inform in writing the instructor of the class of the action, and the student shall be assigned a grade of **W**.

A student may also petition the dean to withdraw from a class during the latter half of the term if he or she has excused absences in excess of one-fifth of the class contact hours in a course where attendance is required or is a criterion for a grade.

**Unofficial Withdrawal from a Course**: Any student who misses the first two class periods of a course without notifying the department of their intention to attend may be reported by the department to the dean who shall drop the student from the course and notify the Registrar that the student has been removed from the class roll. The Registrar will inform the student that she/he has been dropped. The student will have no record of the class appear on their transcript.

**Withdrawal to Enter Military Service**: Students who withdraw from the University after completing the twelfth week of the normal semester, the third week of the four-week summer semester or the sixth week of the eight-week summer semester, or later, and within ten (10) days enter the Armed Services shall be entitled to receive full credit and residence for the course. The grade report shall be that attained in the course up to the time of withdrawal. If, with the credit and residence time granted, the student has fulfilled all require-

ments for a degree, the student shall be recommended for that degree by the Senate of the University. If a comprehensive examination is required for graduation, this requirement shall be waived.

**Audit.** Students who register for an audit do so for reasons other than fulfilling explicit requirements. They must come to individual agreements with the instructor as to what responsibilities they will be expected to perform. Normally, students who audit would be expected to do the readings and attend class; they may be required to enter more fully into the class work. In any case, they will receive no credit hours or grades. Any change from audit to credit or credit to audit by a student regularly enrolled in a college must be accomplished by the last date to drop a course without a grade in any given term. No credit can be given for a class audited nor is a student permitted to take an examination for credit except for the special examinations described on page 46 under Special Examinations. A student who initially enrolls in a class as an auditor must attend at least 80 percent of the classes in the course (excluding excused absences). If a student changes her or his enrollment from credit to audit, s/he must attend at least 80 percent of the remaining classes (excluding excused absences). If an auditor fails to attend the requisite number of classes, the dean may award a grade of **W** for that course. No instructor is authorized to admit anyone as an auditor to any classes unless the auditor has registered as such.

**Repeat Option.** An undergraduate student has the option to repeat once as many as three different courses which have been completed with only the grade, credit hours, and quality points for the second completion used in computing the student's academic standing and credit for graduation. The limit of three repeat options holds for a student's entire undergraduate career, no matter how many degrees or programs are attempted. A student also may use the repeat option when retaking a course on a Pass-Fail basis (provided the course meets the requirements for being taken Pass-Fail), even though the course was originally taken for a letter grade. If a failing grade (F) is earned on the second attempt, the original grade will continue to be used in calculating the grade-point average and the second attempt shall constitute exhaustion of one of the student's three repeat options under this provision. **A student exercising the repeat option must notify in writing the dean of the college in which he or she is enrolled. A student may exercise the repeat option at any time prior to graduation.** If a student officially withdraws from the second attempt, then the grade, credit hours, and quality points for the first completion constitute the grade in that course for official purposes, and the second attempt constitutes exhaustion of one of the three options to repeat a course under this provision unless, at the time of withdrawal, the instructor and the dean of the college grant permission to attempt the same course again. (Note: The repeat option cannot be used to raise the student's standing for admission to the University of Kentucky Graduate School.)

The repeat option may be exercised only the second time a student takes a course for a letter grade, not a subsequent time.

**Pass-Fail Option.** Undergraduate students above the freshman level and not on academic probation may select a maximum of four elective courses, with certain restrictions, to be taken on a Pass-Fail basis. Students in the Honors Program above the freshman level may, with advance written approval of the Director of the Honors Program, select additional elective courses to be taken on such a Pass-Fail basis. Credit hours successfully completed under this option will count toward graduation but will not be used in calculating grade-point standing. Courses taken on a Pass-Fail basis are limited to those considered as elective in the student's program and such other courses or types of courses as might be specifically approved by the Senate Council for a college or department. Prerequisites for such courses may be ignored at the student's own hazard. The student is expected to participate fully in the course and take all examinations as though enrolled on a regular basis. Students may not change from a Pass-Fail basis nor from a regular basis to a Pass-Fail basis after the last day to drop a course without a grade in any given term. Courses offered only on a Pass-Fail basis shall not be included in the maximum number of elective courses which a student may take under these provisions.

Except for courses offered only for Pass-Fail, the instructor shall not be notified by the Registrar's Office or by another office of the University of those students who are taking the course Pass-Fail. The instructor shall submit a regular grade to the Registrar's Office which will take the appropriate action to change the grade into the Pass-Fail grading track for records.

### Grade-Point Average

The grade-point average is the ratio of the number of points gained to the number of credit attempted, W, P, S, and I being ignored.

## SPECIAL MARKING SYSTEMS

The College of Architecture, the College of Agriculture: Landscape Architecture, and the College of Fine Arts include the use of plus-minus symbols. The following grades are given with the respective quality point value indicated.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A | 4.0 | B+ | 3.3 | C+ | 2.3 | D+ | 1.3 | E | 0 |
| A- | 3.7 | B | 3.0 | C | 2.0 | D | 1.0 | | |
| | | B- | 2.7 | C- | 1.7 | D- | 0.7 | | |

The use of the plus-minus system does not change any college or University grade point average requirements nor the method by which grade point average are computed, nor the interpretations of other grades awarded, such as F, I, P, W, & S.

For all studio work in the College of Architecture, the minimum passing grade from level to level in the studio sequence shall be a grade of C.

The Landscape Architecture program policy requires a student to achieve a C grade or better in major design studios in order to advance to the next level.

In the College of Fine Arts, this grading system does not change any college or departmental requirements with regard to minimum grade point averages requires in specific courses or in specific programs of study.

### College of Law

The College of Law uses a special letter grading system in which the following grades are given with the respective quality point values indicated:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| A+ | 4.3 | B+ | 3.3 | C+ | 2.3 | D+ | 1.3 | E | 0 |
| A | 4.0 | B | 3.0 | C | 2.0 | D | 1.0 | | |
| A- | 3.7 | B- | 2.7 | C- | 1.7 | D- | 0.7 | | |

A student's academic grade record is expressed as a grade-point average computed by multiplying the semester hours of credit for each course by the quality point value of the grade received in the course. These products are added together, and the sum is divided by the total semester hours attempted. The grade-point average thus derived is the basis for each student's academic status as indicated in the published rules and policies of the Law Faculty.

### Pass/Fail Policy for College of Law

Students in the College of Law are bound by the following:

(a) No more than six hours of graduate courses outside of the law school, graded on a pass/fail basis, shall be counted.

(b) No more than six hours of courses in the law school that are offered only on a pass/fail basis shall be counted.

(c) No more than nine of the total number of pass/fail credit hours, whether earned for graduate school courses under (a) or for law school courses offered only on a pass/fail basis under (b), shall be counted.

(d) No more than one graduate school course outside the law school, graded on a pass/fail basis, may be credited in any one semester.

Students in joint degree programs may only take up to six pass/fail course credit hours in the law school courses and may take no courses outside the law school for credit toward the J.D. other than pursuant to the applicable joint degree program.

Selected College of Law courses are graded on a pass/fail basis, and law students enrolled in courses offered by The Graduate School for which the College of Law grants credit toward graduation are treated by the College of Law as pass/fail courses. A failing grade (F) in any pass/fail course in the College of Law or any graduate school course in which a student in the College of Law enrolls for credit toward graduation from the College of Law will be taken into account at a quality point value of zero (0) in computing the student's academic average.

### College of Medicine

**A** represents exceptionally high achievement in performance. It is valued at four quality points for each credit hour.

**B** represents the expected level of achievement or performance in each course. This grade reflects student competence in all areas of course requirements. It is valued at three quality points for each credit hour.

**C** represents marginal performance. It is valued at two quality points for each credit hour.

**E** represents failure or unacceptable performance in a course. It is valued at zero quality points for each credit hour.

**P** represents a passing grade in a course taken on a pass-fail basis. It is not used in quality point calculations.

**W** denotes withdrawal from the college or from an elective course. **W** must be approved or recommended by the Student Progress and Promotion Committee. Withdrawal from a required course is not permitted, except when a student withdraws from the college. A student can withdraw from an elective and the **W** will remain on the record.

**U** represents unsatisfactory performance in a specific area of course requirements. It is given instead of an **E** grade when evidence exists that the student might earn a **C** grade upon completion of make-up work. In the interim the **U** will be valued at one quality point for each credit hour. A **U** grade must be replaced by a **C** or **E** grade before the student can be promoted to the next year. The quality point calculation will then be the average of the **U** and the **C** or **E** grade.

**I** represents incomplete work at the time grades are submitted for courses. It is given only when there is a reasonable possibility that a grade of **C** or better will be earned upon completion of the work. All **I** grades in required courses must be removed by a passing grade before a student can be promoted to a subsequent year. If a student later withdraws from the college, an outstanding **I** grade can revert to a **W** grade at the discretion of the Student Progress and Promotion Committee.

### College of Dentistry

Honors, Pass and Unsatisfactory are the designations for College of Dentistry students. The H, P, U designations are utilized *only* for dental students. The few graduate and/or undergraduate students in essentially dental classes are graded as is the rest of the University.

## OTHER REGULATIONS

### Language Limitations for Foreign Students

Students whose native language is other than English and who have had formal instruction in schools of their own country shall not be permitted to take elementary, intermediate or conversation courses or examinations for credit in that language.

### Late Registration

After the sixth day of classes in either semester or the fourth day of that term of the summer session in which the student is enrolled, no student may register for an organized class. On recommendation of the dean concerned, the University Registrar may set a later date for final registration in classes that do not start on the first day of a semester or a summer session, or for the registration of a group of students who were not present at the regular registration time.

### Participation in Intercollegiate Athletics

The University accepts the eligibility rules for intercollegiate athletics as set up by the Southeastern Conference, National Collegiate Athletics Association, Region II, the Association of Intercollegiate Athletics for Women, and the Kentucky Women's Intercollegiate Conference.

### Attendance and Completion of Assignments

For each course in which the student is enrolled, the student shall be expected to carry out all required work including laboratories and studios, and to take all examinations at the class period designated by the instructor.

Each instructor shall determine the policy regarding completion of assigned work, attendance in class, absences at announced or unannounced examinations, and excused absences in excess of one-fifth of class contact hours. This policy shall be presented in writing to each class at its first or second meeting. Students' failure to comply with the announced policy may result in appropriate reductions in grade as determined by the instructor.

### Excused Absences

The following are defined as excused absences:

1. Illness of the student or serious illness of a member of the student's immediate family. The instructor shall have the right to request appropriate verification.

2. The death of a member of the student's immediate family. The instructor shall have the right to request appropriate verification.

3. Trips for members of student organizations sponsored by an academic unit, trips for University classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor **prior** to the occurrence of such absences, but in no case shall such notification occur more than one week after the absence. Instructors may request formal notification from appropriate University personnel to document the student's participation in such trips.

4. Major Religious Holidays. Students are responsible for notifying the instructor **in writing** of anticipated absences due to their observance of such holidays no later than the last day for adding a class.

5. Any other circumstance which the instructor finds reasonable cause for non attendance.

Students missing work due to an excused absence bear the responsibility of informing the instructor about their excused absence within one week following the period of the excused absence (except where prior notification is required), and of making up the missed work. The instructor shall give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred. The student shall be given the opportunity to make up exams missed due to an excused absence during the semester in which the absence occurred, if feasible. In those instances where the nature of the course is such that classroom participation by the student is essential for evaluation, the instructor shall, if feasible, give the student an opportunity to make up the work missed during the semester in which the absence occurred.

If attendance is required or serves as a criterion for a grade in a course, and if a student has excused absences in excess of one-fifth of the class contact hours for that course, a student shall have the right to petition for a **W**, and the faculty member may require the student to petition for a **W** or take an **I** in the course.

**Final Examinations**

If a final examination is given, it is to be administered during the examination period as scheduled by the University Registrar for the semesters of the regular school year. These examination periods utilize the last five days of each semester, and are preceded by a study day or weekend on which no classes or examinations are scheduled.

Final examinations, where appropriate, are administered during the last class day of the intersession and the summer session.

During the last week of classes of a regular session or during the three-day period prior to the last day of class in the intersession or summer session, no examination is to be given except for laboratory practicals or "make-up" examinations. In cases of "take home" final examinations, students are not required to return the completed examination before the regularly scheduled examination period.

Final examinations may be given at times other than the regularly schedule times in the following instances:

**Faculty:** In the case of conflicts or undue hardship for an individual instructor, a final examination may be rescheduled at another time during the final examination period upon the recommendation of the chairperson of the department and with the concurrence of the dean of the college and the University Registrar.

**Students:** Any student with more than two final examinations scheduled on any one date is entitled to have the examination for the class with the highest catalog number rescheduled at another time during the final examination period. In case this highest number is shared by more than one course, the one whose departmental prefix is first alphabetically will be rescheduled. The option to reschedule must be exercised in writing to the appropriate instructor two weeks prior to the last class meeting. If a conflict is created by rescheduling of an examination, the student is entitled to take the rescheduled examination at another time during the final examination period. In the case of undue hardship for an individual student, a final examination may be rescheduled by the instructor.

**Common Examinations**

A student enrolled in a course where a common exam is scheduled may also enroll in a class scheduled in the time slot of the common exam.

If a student has a course scheduled at the same time as a common exam and the student has given written notice of the conflict to the instructor at least two weeks prior to the common exam, the student shall be entitled to an excused absence from the conflicting common examination.

**Common Examinations Scheduled for the Same Time**

Any student for whom two examinations have been scheduled for the same time shall be entitled to have the examination for the class with the highest catalog number rescheduled. In case both classes have the same number, the one whose departmental prefix is first alphabetically will be rescheduled. The option to reschedule must be exercised in writing to the appropriate instructor two weeks prior to the scheduled exam.

**Special Examinations**

Any full-time or part-time student enrolled in the University, and in good academic standing, has the right to request a special examination for credit in many courses offered in the University System (check with the offering department); regardless of whether the student has audited the course, is currently enrolled in it, or has studied for it independently.

Application for a special examination must be made in writing. (Students should obtain application forms in the Registrar's Office.) Undergraduates should address requests to the chairperson of the department in which the course is given, or to the office of the academic unit responsible; graduate students, to the director of graduate studies in the department in which the course is given. Approval of requests from undergraduate students rests with the department chairperson; from graduate students, with the Dean of The Graduate School, acting upon recommendation of the director of graduate studies.

The request for special examination may be denied by the department chairperson or the office of the administrative unit responsible, or the Dean of The Graduate School, acting upon recommendation of the director of graduate studies, if it is decided that the student has not furnished evidence that he or she is reasonably prepared to take the examination, or that the course is of such a nature that credit by examination is inappropriate. (The fact that a student has failed the course within the last semester may be regarded as evidence that the student is unprepared to take a special examination.)

The instructor may schedule the examination at his or her convenience, but must offer it within a reasonable time after the student has submitted his or her request.

The examiner must inform the University Registrar of the student's grade in the course. A student currently enrolled in the class who successfully completes a special examination will be formally removed from the official roll by the Registrar, unless the student is dissatisfied with the results, in which case he or she may continue in the course and be graded in the usual manner. The instructor then may or may not include the results of the special examination in computing the final grade.

Credit earned by special examination may be counted as residence credit by the dean of the student's college. The limits on maximum loads are waived in cases where the excess is due to special examination credits.

The student, with the department chairperson's consent, may take the special examination on a Pass-Fail basis, including any course not otherwise available under the Pass-

Fail option. Credit derived in this manner does not reduce the number of courses permitted under the Pass-Fail rules.

## SCHOLASTIC PROBATION, ACADEMIC SUSPENSION AND REINSTATEMENT

### General Regulations for Undergraduate Students

#### Academic Probation and Suspension

The academic probation and suspension systems that are used to determine a student's academic standing University-wide are based on quality point deficit. The base for determining the deficit is the number of quality points which would result from multiplying the number of hours attempted by two. Deficit is the difference, if any, between this base and the number of quality points earned.

Individual colleges may establish policies regarding academic probation and suspension with regard to a student's academic standing within the college in addition to the University-wide policies given here. If a college establishes such a policy, the policy must be approved by the University Senate and made available in writing to the students.

A student suspended from a college or program may transfer to another college or program which has a 2.0 grade-point average admission requirement for transfer students, even if the student has a GPA lower than 2.0, provided he or she is not subject to the provisions for suspension from the University. However, the student must meet all other admission criteria established by the college or program. If the student would have been placed on academic probation by the college to which he or she is transferring had he or she been previously enrolled in that college, then the college may place the student on probation at the time of admission.

#### Scholastic Probation

Students are placed on scholastic probation if:

1) Their cumulative grade point average (GPA) falls below 2.0. Students on probation for this reason who achieve a cumulative 2.0 GPA shall be removed from probation;

2) They are freshman students who have completed a semester of 18 or fewer hours with a GPA or less than 1.75. Students on probation for this reason who achieve a cumulative GPA of 2.0 shall be removed from probation. The dean shall warn students with GPAs between 1.75 and 1.99 inclusively that they are not making satisfactory academic progress.

3) They have two consecutive academic terms with semester GPAs below 2.0 regardless of their cumulative GPA. Students who achieve a 2.0 or better in the next term and have a cumulative GPA of 2.0 or better will be removed from probation.

#### Removal from Probation

Except as provided for by specific college probation policy, an undergraduate student may be removed from probation by the dean of the college when:

1) The student on scholastic probation has not earned 90 semester hours (senior standing), and at the end of a semester or session has reduced the cumulative deficit to five quality points or less;

2) The student on scholastic probation has earned 90 semester hours (senior standing), and at the end of a semester or session has a cumulative grade-point standing of 2.0.

#### Academic Suspension

Students are subject to suspension if:

1) they have three consecutive semesters in which their cumulative GPA remains below 2.0.

2) They fail to earn a 2.0 semester GPA for any term on probation.

Students are subject to suspension without a preliminary probationary semester if their GPA is below 0.6 after their first term of full time enrollment in the University System. This provision does not pertain to students who have transferred from the Community College System.

In cases of students eligible for suspension, the dean of the student's college may continue a student on academic probation if the individual case so justifies.

#### General Rules Pertaining to Students Under Academic Suspension

A student who is under academic suspension may not enroll in any courses offered by the University of Kentucky, nor take any examination for University of Kentucky credit.

A student who has been academically suspended a second time will not be readmitted to the University except in unusual circumstances and then only upon recommendation of the dean of the college in which the student plans to enroll and approval of the University Senate Council.

Once reported to the University Registrar, an academic suspension may be rescinded by the dean only in the event of an error in the determination of the student's eligibility for suspension, an official grade change that alters the student's suspension eligibility, or exceptional circumstances. In such cases a written notice of rescission documenting the basis for the action must be filed with the University Registrar by the dean imposing the original suspension.

#### Reinstatement

After they have remained out of the University for at least a semester and a summer session (a semester for students academically suspended at the end of a summer session), students who have been academically suspended may only be reinstated by the dean of the college in which they plan to enroll when they present evidence that they are capable of performing at the level required to prevent being suspended a second time. After being reinstated, students must apply for readmission to the University.

#### General Rules for Reinstated Students

A student who has been academically suspended will, upon reinstatement, be placed on scholastic probation and be subject to final academic suspension from the University if:

The student acquires any additional deficit during any semester or session while on scholastic probation;

The student has not reduced the deficit by eight quality points or eliminated it by the end of the second semester following the reinstatement;

The student has failed to meet the requirements for removal from scholastic probation by the end of the third semester following the reinstatement.

Once reinstated students have been removed from scholastic probation, they will be subject to the same conditions for subsequent academic suspension as students who have not previously been academically suspended.

#### Readmission After Two or More Years (Academic Bankruptcy)

Undergraduate students who have been readmitted through the usual channels after an interruption of two or more years, and who have completed at least one semester or 12 credit hours with a grade-point average of 2.0 after readmission, may choose to have none of their previous University of Kentucky course work counted toward graduation and toward

the computation of their grade-point standings. The calculation of the grade-point average after readmission begins with the semester of readmission.

In addition, the dean of the student's college may permit such a readmitted student who has elected not to count past work to receive credit for selected courses without including those grades in the computation of the student's grade-point standing.

Part-time as well as full-time students can take advantage of the academic bankruptcy rule. Students need not have been originally suspended from the University to qualify for this option. Attendance at a community college in the UK system is equivalent to attendance at UK itself for the purposes of this option. A student can petition for academic bankruptcy for work done at a community college. This option is not available to a student who transfers in more than 24 credit hours taken at another institution during the first two years after leaving the University of Kentucky.

A student who has completed at least 12 hours of work with a GPA of 2.0 or better would be eligible for academic bankruptcy even if she/he received an E in one or more of the courses.

If a student has completed a degree and re-enrolls, she/he may not apply the academic bankruptcy rule to courses taken for the degree already completed.

The Academic bankruptcy option may be used only once.

## College of Engineering

### Probation and Academic Suspension

In addition to the University rules on probation and academic suspension, the following rules apply in the College of Engineering.

**Definition:** Engineering standing is defined as the overall grade-point average for all course work taken while enrolled in the College of Engineering. Excluded are correspondence courses and transient work. (The term **semester standing** refers to the grade-point average for a single semester.)

1. A student who fails to achieve an engineering standing of 2.0 at the end of any semester will be placed on academic probation.
2. A student, regardless of engineering standing, whose semester standing is less than 2.0 for two consecutive semesters will be placed on probation.
3. A student who, at the end of the first probationary semester, achieves a semester standing of 2.0 but fails to bring the engineering standing up to 2.0 will be continued on probation.
4. A student who, at the end of a probationary semester, fails to have achieved a semester standing of 2.0 will be dropped from the College of Engineering.
5. A student who, at the end of the second consecutive probationary semester, fails to have achieved an engineering standing of 2.0 will be dropped from the College of Engineering.
6. A student who fails to achieve an engineering standing of 1.5 at the end of any semester shall have his or her record reviewed and may be dropped from the college without a preliminary probationary semester.
7. A student who has been dropped a single time for academic deficiency may be reinstated into the College of Engineering after an absence of one year. A student will be reinstated as a first semester probationary student and subject to final suspension according to these rules.
8. The dean may use discretion in applying these rules where a particular case justifies less severe action.

## College of Allied Health Professions

### Probation and Suspension Policy for Professional Program Students

Allied Health professional students are subject to the general University regulations pertaining to academic probation and suspension. In addition, the following standards apply to Allied Health professional students:

**Professional Program Probation**

A student will be placed on professional program probation when:

1. the semester grade-point average falls below 2.0 in courses required by the professional program, or
2. a failing grade is earned in any course required by the professional program.

**Removal from Professional Program Probation**

A student may satisfy the deficiency warranting probation and will be removed from professional program probation when:

1. in the semester following professional program probation, a 2.0 or above semester grade-point average is achieved in courses required by the professional program, and
2. a passing grade is earned in any previously failed courses required by the professional program.

**Professional Program Suspension**

A student will be suspended from the professional program when:

1. a 2.0 semester grade-point average in courses required by the professional program is not earned either at the end of the probationary semester, or in any subsequent semester, or
2. a course required by the professional program is failed a second time, or
3. two courses required by the professional program are failed, unless alternative action is recommended by the Program Director and approved by the Dean of the College of Allied Health Professions.

## Clinical Laboratory Sciences

Undergraduate students in the Clinical Laboratory Science professional program are subject to the University's general regulations for undergraduate students pertaining to scholastic probation, academic suspension, and reinstatement. In addition, the following standards apply:

**Student Progress**

Students admitted to the Clinical Laboratory Sciences (CLS) program may advance into the senior year and/or clinical rotation of the CLS program of study on the condition that each has (1) at least a grade-point average of 2.00 on all course work; and (2) has earned a minimum grade of **C** (2.0) in every course with the CLS prefix.

**Undergraduate Professional Program Probation**

Regardless of academic standing in the University, a student shall be placed on probation where the student:

1. earns a semester grade-point average (GPA) less than 2.0 in all courses required by the CLS program, or
2. earns a grade less than **C** (2.0) for any course having the CLS prefix.

**Removal from Undergraduate Professional Program Probation**

A student will be removed from probation when:

1. in the semester following probation, the student earns a semester GPA of at least 2.0 in courses required by the CLS program, and

2. the student earns at least a grade of **C** (2.0) in any course with a CLS prefix in which previously the student earned a grade below **C**.

**Undergraduate Professional Program Suspension**

A student shall be suspended from the undergraduate CLS program when the student:

1. earns less than a semester GPA of 2.0 in courses required by the CLS program at the end of the first probationary period or in any subsequent semester, or

2. earns less than a **C** in a course with a CLS prefix for the second time, or

3. earns less than a **C** in any two courses required in the CLS Program.

**Removal from Undergraduate Professional Program Suspension**

A student may be reinstated into the CLS program when the student meets the requirements for readmission as determined by the CLS Admissions and Progression Committee. These requirements will be communicated to the student at the time of suspension.

## The Graduate School

When graduate students have completed 12 or more semester hours of graduate course work with an average of less than 3.0, they will be placed on academic probation. Students will have one semester to remove the scholastic probation by attaining a cumulative 3.0 average in graduate course work. If the probation is not removed, the student will be dismissed from The Graduate School.

A student who has been dismissed from The Graduate School for these reasons may reapply for admission to The Graduate School after two semesters or one semester and the eight-week summer term.

Exceptions to this policy can be made only by the Graduate Dean.

With the approval of the Graduate Dean, a student may repeat a graduate course and count only the second grade as part of the graduate grade-point average. This action will be initiated by petition of the Director of Graduate Studies and may be done only once in a particular degree program or in post-baccalaureate status.

## Professional Colleges

**Pharmacy**

Pharmacy standing is the overall grade-point average for all professional and nonprofessional work accomplished by the student while enrolled in the College of Pharmacy.

Any student who fails to achieve a pharmacy standing of 2.0 at the end of any semester will be dropped from the college or placed on academic probation.

Any student who fails to achieve a pharmacy standing of 1.5 at the end of any semester will have his or her record reviewed by the College of Pharmacy faculty and may be dropped from the college without a preliminary probationary semester.

Any student who, at the end of the first probationary semester, fails to have achieved a semester standing of 2.0 at the end of this semester shall be dropped from the college.

Any student who, at the end of the first probationary semester, achieves a 2.0 standing for that semester but fails to bring the pharmacy standing up to 2.0 will be continued on probation or be dropped from the college.

Any student who, at the end of the second consecutive probationary semester, fails to have achieved a 2.0 pharmacy standing shall be dropped from the college.

A student who has been dropped for academic deficiency may be readmitted on probation according to University regulations except that the student's academic requirements will be those outlined above.

Any student who, regardless of pharmacy standing, fails to have achieved a 2.0 standing for two consecutive semesters may be placed on probation.

**Law**

All students in the College of Law must maintain a satisfactory cumulative grade-point average or be dropped from the college for poor scholarship. Any student who receives a grade-point average below 1.5 for his or her first semester of law study may be dropped by the dean on recommendation of the Law Faculty Academic Status Committee for poor scholarship. Any student who fails to achieve a 2.0 cumulative grade-point average at the end of the first two semesters will automatically be dropped for poor scholarship. In addition, any student whose cumulative average falls below 2.0 at the end of any subsequent semester will also be dropped from the college.

Any student who receives a grade of E in a required course must reregister for the course and complete all its requirements. Both the initial and subsequent grade will be reflected on the student's record and counted in the computation of class standing.

Any student dropped for poor scholarship may petition the Law Faculty Academic Status Committee for readmission. A recommendation to the dean for readmission is within the discretion of the committee; however, in most cases, the following policies will guide the committee: a student dropped after the first semester will be required to petition the full faculty for readmission; in the case of students dropped at the end of the second semester, a student with a cumulative grade average of 1.9 and above will normally be readmitted, a student with a cumulative average of 1.7 to 1.89 may be readmitted but will be carefully scrutinized, and a student with a cumulative average below 1.7 will normally not be readmitted; any student dropped at the end of the third semester or thereafter will be subject to case-by-case analysis.

Any student who is readmitted after being dropped at the end of the second semester and who fails to raise his or her cumulative grade-point average to 2.0 by the end of the third semester will be readmitted again at that time only if he or she has made material progress toward raising his or her cumulative grade-point average to 2.0. Material progress at a minimum shall mean obtaining a 2.0 GPA for the semester. Moreover, such student must raise his or her cumulative average to 2.0 by the end of the fourth semester. In addition to the foregoing academic standards for readmission, the committee may impose additional academic standards in individual cases, and in any case may impose other reasonable conditions of readmission including, but not limited to, limitation of outside work, specification of schedule of study (including specification of particular courses and limitation of hours), and the limitation of extracurricular activities. The committee with the approval of the full law faculty may also require the repetition of courses either with or without substitution of the grades awarded in the courses retaken. Students who fail to comply with the requirements and conditions of readmission will be dropped again from the college and will not be readmitted without approval of the University Senate Council upon the recommendation of the dean following

action by the full law faculty. Any student aggrieved at any time by recommendation of the Academic Status Committee may petition the full law faculty for review.

A student who is required by the Academic Status Committee to repeat 14 or more hours of the freshman curriculum in his or her third and fourth semester will be considered as enrolled in his or her first and second semesters.

A student who has once been dropped for poor scholarship and who fails to have a 2.0 cumulative average at the end of the semester or summer session in which he or she completes the 88th hour of course work will not be allowed to graduate from the College of Law. Such student will not be allowed to enroll in additional hours of course work in an attempt to achieve a 2.0 cumulative average.

### All Undergraduate and Professional Colleges

Each student has access to rules that deal with scholastic probation, academic suspension, and reinstatement through the printed class schedule, this Bulletin, and *Student Rights and Responsibilities.*

## GRADUATION REQUIREMENTS

To be eligible for any degree, a student must have completed the requirements as approved by the University Senate, except that curriculum substitutions may be made by the college affected if not inconsistent with these rules. Curriculum requirements must include, in addition to specified credits, a specified grade-point average both overall and in the student's major which may in no case be less than 2.0. Every baccalaureate degree program must include four divisions or components: (1) University Studies, (2) premajor or preprofessional, (3) general college requirements (if any), (4) major or professional, and (5) free electives.

The student must file an application for graduation with the dean of the college from which the degree is to be awarded within 30 days after the beginning of the semester or 15 days in the summer session in which the student expects to complete the work.

### Inference Requirement

Each baccalaureate students must satisfy one of the following:

1) Any calculus course
   **or**
2) STA 200 Statistics: A Force In Human Judgment, **PLUS**
   PHI 120 Introductory Logic, **OR**
   PHI 320 Symbolic Logic

### University Writing Requirement

The University requires demonstrated competency in writing. Competency may be demonstrated in one of the following ways—(1) Students who have a standard score of 28 or below on the English section of the ACT must satisfactorily complete ENG 101, Writing I, and ENG 102, Writing II. (2) Students who have a standard score of 29 or above on the English section of the ACT may elect to take a special writing proficiency examination, administered by the English Department Writing Program. Students who pass this examination are eligible to fulfill the University Writing requirement by successfully completing ENG 105, Writing: An Accelerated Course. Students who do not pass this examination are required to take the normal sequence of ENG 101-102. For complete information on the writing proficiency examination, students should contact the Writing Program Office, 1221 Patterson Office Tower, (606) 257-7002.

Full-time students must enroll in either ENG 101 or 102 each semester until they have satisfied the Writing requirement, unless they qualify for ENG 105, in which case they may enroll during either semester of the freshman year.

Only in unusual circumstances (such as illness, injury, serious financial difficulties, serious personal or family problems) will a student be permitted to withdraw from a course needed to fulfill the University Writing requirement. Only the dean of the student's college can authorize such withdrawals, in consultation with the instructor and the Director of the Writing Program.

#### Change in Program Requirements

When requirements for an undergraduate degree program are changed after a student has enrolled in it, the student has the option of fulfilling either the old or the new requirements.

In fulfilling the old requirements, if a student finds that necessary courses have been eliminated or substantially revised, he or she may substitute other courses with the approval of the dean of the college. In this eventuality, however, the student shall not be forced to comply with the new requirements.

However, if a student interrupts work in the program or the University for more than two semesters, then the dean of the college shall determine which requirements the student shall fulfill.

If the curriculum revision is required by an external accreditation or certification body, and this body submits a written statement to the University that the accreditation of a program or certification of its graduates is in jeopardy unless students fulfill the new requirements, the option of fulfilling the old requirements shall not apply.

When The Graduate School or degree program requirements are changed after a student has begun a course of study, the student shall have the option of fulfilling either the old or new requirements.

If the student elects to fulfill the old requirements but finds that necessary resources (e.g., courses, instruction in particular skills) are no longer available, the student may make reasonable substitutes with the approval of The Graduate School Dean upon recommendation of the Director of Graduate Studies.

In the event that a student interrupts work on a graduate degree (i.e., is not enrolled) for one calendar year or more, The Graduate School Dean shall determine, upon recommendation of the Director of Graduate Studies, whether the old requirements or the new requirements shall apply. In the event a student has not completed the requirements for the graduate degree five years after the effective date of a change in degree requirements, the new requirements shall apply unless determined otherwise by The Graduate School Dean.

The colleges offering professional degrees (Law, Medicine, Dentistry, Pharmacy) reserve the right to change curriculum requirements provided the program change has gone through the University's approval process. Any such change in curriculum, however, shall not result in a longer tenure for students enrolled in the program who are making satisfactory academic progress.

#### Residence Requirement

Residence—a requirement for a degree which specifies the minimum period during which a student must be registered on the main campus—is intended to provide an adequate contact with the University and its faculty for each student who is awarded a degree.

For an undergraduate degree, regardless of the length of time the student has attended the University, a minimum of 30 of the last 36 credits presented for the degree must be taken from the University, but not necessarily on the main campus.

Requests for waiver of this requirement for veterans or other students must be approved by the dean of the student's college.

**Credit by Correspondence and Examination**

No more than 30 credit hours of the total required for an undergraduate degree may be gained by correspondence. No more than one-third of the requirements for a major may be gained by correspondence.

No credit will be given in The Graduate School or in the professional colleges for courses done by correspondence.

No more than half of the credit toward an undergraduate degree may be earned by any combination of CLEP examinations, PEP examinations, PONSI courses, departmental examinations, and Advanced Placement examinations.

**Commencement Honors**

Students who attain a grade-point average of 3.8 or higher for at least three years (90 hours) of work at the University (excepting correspondence study) shall be graduated "Summa Cum Laude."

Students who attain a grade-point average of 3.6 or higher for at least three years (90 hours) of work at the University (excepting correspondence study) shall be graduated "Magna Cum Laude."

Students who attain a grade-point average of 3.4 to 3.6 for at least three years (90 hours) of work at the University (excepting correspondence study) shall be graduated "Cum Laude."

Students with a minimum of two (60 hours) but less than three years (90 hours) of work at the University will receive the appropriate commencement honors if they attain a grade-point average of 0.2 greater than those specified for three years of residence work.

The bachelor's degree with honors in a student's major or a degree with honors from a professional college will be conferred upon a student whom the faculty of the student's department, or college, in the case of a professional college, and the dean of the student's college recommend receive the degree. A student may be required to complete work in addition to that required for the bachelor's or professional degree to receive a degree with honors.

The degree with honors from a professional college is based solely upon work done in the professional college.

All students in the Honors program of the University who do not have a grade-point standing of 3.5 or better but are in the top 10 percent of their college's class are eligible to graduate in the Honors program if they satisfy the other requirements and have approval of the Honors Program Director.

Work done in the University of Kentucky Community College System shall be counted as work at the University of Kentucky in calculating the grade-point average for honors.

**A Double Major**

An undergraduate student earns a double major when he or she completes all university, college, and departmental requirements in one department—the Primary Major—and all departmental requirements in a second department—the Secondary Major. If there is a generic relationship, work in the Primary Major may be applicable to the Secondary Major. The student must indicate the double major to the Registrar and to the student records office in his or her college(s). The student must have an adviser in each major. The student who completes the requirements for a double major receives a degree from the college of his or her Primary Major and has the successful completion of the Secondary Major entered on his or her transcript. A Secondary Major may be completed after the degree for the Primary Major has been awarded. A double major does not result in an additional degree.

Concurrent enrollment for degree purposes in more than one graduate program is permitted only with the approval of the student's graduate adviser(s), Directors of Graduate Studies in the programs, and the Dean of The Graduate School.

Subsequent to the receipt of a doctoral degree, a student is not eligible to receive a master's degree based on the work which led to the doctorate.

**A Second Bachelor's Degree**

A student is eligible to qualify for a second bachelor's degree in a different major. The student must complete all university, college, and departmental requirements for both degrees. Courses taken towards fulfilling one degree may also count towards fulfilling parallel requirements in the other, but the total credits in the two degree programs must be at least 144 hours. The student may elect to receive the degrees simultaneously, if college and departmental requirements can be met simultaneously.

**A Second Master's Degree**

A student may receive two master's degrees. However, simultaneous enrollment in two or more programs and the granting of two or more master's degrees at the same time is not permitted, unless approved by the student's advisers and the Directors of Graduate Studies in the programs.

**The University Scholars Program**

The University Scholars program enables gifted and highly motivated students to integrate their undergraduate and graduate or professional courses of study into a single, continuous program leading to both a baccalaureate and master's degree. The admissions requirements for the University Scholars program and the curricular requirements are outlined in the *Special Academic Programs* section of this Bulletin.

**Academic Minors**

Many departments have designed academic minors for the convenience of undergraduate students. A minor is a structured group of courses that leads to considerable knowledge and understanding of a subject, although with less depth than a major. Some employers consider minors desirable, and the corresponding major requirements at the University may stipulate a minor. Some students choose to complement their major program with a minor in a related field or even in an entirely different field of interest. The minors that are available are described with the departmental listings and major programs in this Bulletin. Students interested in pursuing an academic minor should contact their college dean's office and the department responsible for the minor program for guidance and advising.

# UNIVERSITY STUDIES PROGRAM

A university education truly worth the name must do more than prepare students for a job or a career. It must broaden their understanding of the world, of themselves, of their role in society, and of the ideals and aspirations which have motivated human thought and action throughout the ages. It must help individuals use their acquired knowledge to grow in maturity as they take responsibility for their lives by establishing their own individual goals and developing the habit of lifelong learning.

The broad goals of the University of Kentucky's general education program, called University Studies, make for mature, open, flexible individuals who can adapt to changing situations, learn new skills, and meet unforeseen challenges in their careers. At the same time, University Studies will help students to develop their own sense of values, to pursue their own goals, and to contribute to the political, moral, social, and cultural enrichment of society.

The University Studies Program is separated into five areas of study: basic skills, inference and communicative skills, disciplinary requirements, cross-disciplinary requirements, and the cross-cultural component. **Students are encouraged to work closely with their advisers in selecting courses which are appropriate for their own needs and aspirations.**

**Note:** A course taken to satisfy a requirement in one area of University Studies cannot be used to satisfy a requirement in another except that a) a single calculus course will satisfy the mathematics component in both I-A and II-A; and b) courses approved as Clustered Courses may be used to satisfy both the Cross-Disciplinary and one Disciplinary requirement.

## I. BASIC SKILLS

The principal objectives of the Basic Skills portion of University Studies are to enable students to understand and apply basic principles of mathematics and to communicate their ideas in a language other than English. Students must complete both Part A and Part B.

### Part A - Mathematics

The mathematics component of the Basic Skills requirements may be fulfilled by completing one of the following:

- A score of 26 on the mathematics section of the American College Test or bypass examination, or
- MA 109 College Algebra, or
- MA 110 Analytic Geometry and Trigonometry, or
- any calculus course.

### Part B - Foreign Language

The Foreign Language component of the Basic Skills requirements may be fulfilled by completing one of the following:

- Two years of a foreign language in secondary school as indicated on transcripts, or
- any two-semester sequence (at least six hours) in a single foreign language at the University of Kentucky.

## II. INFERENCE AND COMMUNICATIVE SKILLS

The principal objectives of the Inference and Communicative Skills portion of University Studies are to enable students to think logically and to communicate effectively in written and oral English. Students must complete Part A, Part B and Part C.

### Part A - Inference

The Inference component may be fulfilled by choosing one of the following:

- Any calculus course, or
- STA 200 Statistics: A Force in Human Judgment (Prereq: MA 109), PLUS
- PHI 120 Introductory Logic, or PHI 320 Symbolic Logic I.

  *Note: Students must satisfy the mathematics requirement in Basic Skills before enrolling in STA 200.*

### Part B - University Writing Requirement

To fulfill the Writing Requirement, students must complete one of the following:

- ENG 101/102 Writing I and II.
- Students with a score of 29 or above on the English component of the ACT who pass a proficiency examination may satisfy this requirement by passing ENG 105 Writing: An Accelerated Course.
- Students in the Honors Program should refer to Humanities, Option 2 for alternatives for fulfilling the University Writing requirement.

### Part C - Oral Communication Requirement

The Oral Communication requirement may be fulfilled by selecting one of the following:

- **one** of the following courses:

  COM 181 Basic Public Speaking

  COM 252 Introduction to Interpersonal Communication

  COM 281 Communication in Small Groups

  COM 287 Persuasive Speaking

  TA 225 Vocal Production for the Stage I
- bypass examination, or
- an alternate sequence in the student's major department

  *The following colleges or departments have developed an alternate route for satisfying the Oral Communication requirement: colleges of Agriculture, Allied Health, Pharmacy and Social Work; departments of Aerospace Studies, Agricultural Engineering, Anthropology, Chemical Engineering, Chemistry, Civil Engineering, Economics, French, Geology, German, Landscape Architecture, Marketing, Military Science, Music Education, Physics and Astronomy, and Russian and Eastern Studies. Students who receive a degree in these colleges or departments or who take the sequence of courses prescribed by the unit for oral communication do not have to take one of the offerings in the Communication Department listed above.*

## III. DISCIPLINARY REQUIREMENTS

This portion of University Studies includes natural sciences, social sciences, and humanities. To fulfill the Disciplinary Requirements, students must complete Part A, Part B and Part C.

*Students may also satisfy **one** of the Disciplinary Requirement areas (Part A or Part B or Part C) **and** the six-hour Cross-Disciplinary requirement by taking two designated sequences for a total of twelve hours. These courses are listed under IV. Cross-Disciplinary Requirement: Part B - Clustered Courses.*

### Part A - Natural Sciences (6-10 hours)

The principal objective of the Natural Sciences portion of University Studies is to enable students to define the ways in which science works and to apply that knowledge in appropriate ways.

Students must select **one** of the following sequences to complete 6-10 hours of Natural Sciences. *Because of the USP writing component, some sequences require a laboratory in addition to the class.*

#### Biology

1. BIO 102 Human Ecology
   BIO 103 Basic Ideas of Biology
2. BIO 150/151 Principles of Biology I and Laboratory I
   BIO 152/153 Principles of Biology II and Laboratory II
3. BIO 103 Basic Ideas of Biology
   plus one of the following:
   *BIO 104/105 Animal Biology and Laboratory
   *BIO 106/107 Principles of Plant Biology and Laboratory
4. *BIO 104/105 Animal Biology and Laboratory
   *BIO 106/107 Principles of Plant Biology and Laboratory
5. *BIO 104/105 Animal Biology and Laboratory
   BIO/ENT 300 General Entomology
6. *BSL 110 Human Anatomy and Physiology I
   *BSL 111 Human Anatomy and Physiology II

*Offered at the community colleges only.

#### Chemistry

1. CHE 104 Introductory General Chemistry
   CHE 106 Introduction to Inorganic, Organic and Biochemistry
2. CHE 105 General College Chemistry I
   CHE 107 General College Chemistry II
   CHE 115 General Chemistry Laboratory

#### Geology

1. GLY 101 Physical Geology
   GLY 111 Laboratory for Physical Geology
   GLY 102 Historical Geology
2. GLY 101/111 Physical Geology/Lab
   plus one of the following:
   - GLY 202 Dinosaurs and Disasters: A History of the Vertebrates
   - GLY 210 The Finite Earth: An Introduction to Economic Geology
   - GLY 242 Endangered Planet: An Introduction to Environmental Geology

#### Physics and Astronomy

1. AST 191 The Solar System
   AST 192 Galactic and Extra-Galactic Astronomy
2. PHY 151 Introduction to Physics
   PHY 152 Introduction to Physics
3. PHY 201 General Physics
   PHY 203 General Physics
4. PHY 211 General Physics
   PHY 213 General Physics
5. PHY 231 General University Physics
   PHY 232 General University Physics
6. PHY 232 General University Physics
   PHY 241 General University Physics Laboratory
   PHY 242 General University Physics Laboratory

*The physics sequences 201/203 and 211/213 are the same, except that the 201/203 sequence has no laboratory.*

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### Part B - Social Sciences (6 hours)

The principal objective of the Social Sciences portion of University Studies is to enable students to define some of the basic principles of the social sciences and to apply them in appropriate ways.

Students may fulfill the Social Sciences requirement by selecting two courses in separate disciplines from the following courses: *Note that GEN 101 is in the Economics category and GEN 102 and WS 200 are in the Sociology category.*

#### Anthropology

ANT 121 Introduction to Cultural Anthropology
ANT 241 Origins of Old World Civilization
ANT 242 Origins of New World Civilization
ENG 374 American Folklore

#### Communication

COM 101 Introduction to Communications

#### Economics

ECO 101 Contemporary Economic Issues
ECO 201 Principles of Economics I
GEN 101 The Economics of Food and Agriculture

#### Family Studies

FAM 252 The Individual, Marriage and Family

#### Geography

GEO 152 Regional Geography of the World
GEO 172 Human Geography
GEO 222 Cities of the World

#### Psychology

PSY 100 Introduction to Psychology
*PY 110 General Psychology

#### Political Science

PS 101 American Government
PS 235 World Politics
PS 271 Introduction to Political Behavior

#### Sociology

SOC 101 Introductory Sociology
SOC 152 Modern Social Problems
SOC 235 Inequality in Society
SOC 260 Population, Resources and Change
GEN 102 The Dynamics of Rural Social Life
WS 200 Introduction to Women's Studies in the Social Sciences

*Offered at the community colleges only.

## Part C - Humanities (6 hours)

The principal objective of the Humanities portion of University Studies is to enable students to describe some of the major historical developments and conflicts in Western culture and to understand at least one disciplinary approach to humanistic study.

Students may filfull the Humanities requirement (2 courses in a single discipline) by completing **one** of the following sequences:

### Art

1. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
2. A-H 313 Roman Art
   plus one of the following:
   - A-H 312 The Art of Classical Greece
   - A-H 320 Early Medieval Art
   - A-H 322 Byzantine Art
   - A-H 330 Italian Renaissance Art
3. A-H 321 Romanesque and Gothic Art
   plus one of the following:
   - A-H 330 Italian Renaissance Art
   - A-H 331 Northern European Renaissance Art
4. A-H 340 Nineteenth Century Art
   plus one of the following:
   - A-H 332 Baroque and Rococo Art
   - A-H 341 Modern Art II: Twentieth Century Art
   - A-H 342 American Art
5. Any two of the following:
   - A-H 320 Early Medieval Art
   - A-H 321 Romanesque and Gothic Art
   - A-H 322 Byzantine Art
6. Any two of the following:
   - A-H 330 Italian Renaissance Art
   - A-H 331 Northern European Renaissance Art
   - A-H 332 Baroque and Rococo Art

### English

1. ENG 221 Survey of English Literature I
   ENG 222 Survey of English Literature II
2. ENG 251 Survey of American Literature I
   ENG 252 Survey of American Literature II
3. ENG 261 Survey of Western Literature from the Greeks Through the Renaissance
   ENG 262 Survey of Western Literature from 1660 to the Present
4. ENG 270 The Old Testament as Literature
   ENG 271 The New Testament as Literature

### German

1. GER 263 The German Cultural Tradition I
   GER 264 The German Cultural Tradition II

### History

1. HIS 104 A History of Europe Through the Mid-Seventeenth Century
   HIS 105 A History of Europe From the Mid-Seventeenth Century to the Present
2. HIS 106 Western Culture: Science and Technology I
   HIS 107 Western Culture: Science and Technology II
3. HIS 108 History of the United States Through 1865
   HIS 109 History of the United States Since 1865
4. HIS 202 History of the British People to the Restoration
   HIS 203 History of the British People Since the Restoration
5. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   HIS 230 The Hellenistic World and Rome to the Death of Constantine
6. HIS 270 Early Middle Ages
   HIS 271 Later Middle Ages
7. HIS 285 History of Russia to 1825
   HIS 286 History of Russia Since 1825

### Honors

*Honors students with a score of 29 or better on the English component of the ACT may satisfy both the University Writing requirement and the Humanities requirement by passing three colloquia. Those with less than 29 on the English component of the ACT may satisfy both requirements by passing four colloquia. Honors students who complete all four colloquia also satisfy the cross-disciplinary requirement (described below). These students do not receive an extra six hours of credit, since credit is already applied toward the Humanities and the writing portions of University Studies.*

1. HON 101 The Ancient World
   HON 102 The Medieval and Renaissance World
   HON 201 The Early Modern World
   HON 202 The Contemporary World

### Literature

1. CLA 261 Literary Masterpieces of Greece and Rome
   FR 261 Masterpieces of French Literature in Translation

### Music

1. MUS 100 Introduction to Music
   plus one of the following:
   - MUS 220 Symphonic Music
   - MUS 221 A Survey of Choral Masterworks: Baroque to the Present
   - MUS 300 History of Jazz
2. MUS 201 Music in Western Culture to 1700
   MUS 202 Music in Western Culture, 1700 - Present

### Philosophy

1. PHI 100 Introduction to Philosophy: Knowledge and Reality
   PHI 130 Introduction to Philosophy: Morality and Society
2. PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
   PHI 270 History of Philosophy II: From the Renaissance to the Present Era

### Theatre

1. TA 380 History of Theatre I
   TA 381 History of Theatre II

## IV. CROSS-DISCIPLINARY REQUIREMENT

The principal objective of the Cross-Disciplinary portion of University Studies is to enable students to describe how knowledge generated in one discipline is related to knowledge generated in another.

Students should satisfy this requirement by fulfilling **EITHER** Option A **OR** Option B.

### OPTION A - Paired Courses

Students opting to fulfill the Cross-Disciplinary component separately may select any of the following pairs of courses.

#### Humanities and Fine Arts

1. A-H 105 Ancient Through Medieval Art
   TA 380 History of Theatre I
2. A-H 106 Renaissance Through Modern Art
   DMT 142 History and Theory of Interior Design
3. A-H 106 Renaissance Through Modern Art
   TA 381 History of Theatre II
4. ART 100 Introduction to Art
   TA 101 Introduction to Theatre: Principles and Practice
5. CLA 210 The Art of Greece and Rome
   plus one of the following:
   - HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   - HIS 230 The Hellenistic World and Rome to the Death of Constantine
6. CLA 261 Literary Masterpieces of Greece and Rome
   plus one of the following:
   - HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   - HIS 230 The Hellenistic World and Rome to the Death of Constantine
7. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
8. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   CLA 426G Classical Drama: Tragedy and Comedy in Greece and Rome
9. HIS 247 History of Islam and Middle East Peoples, 500-1250 A.D.
   RAE 328 Islamic Civilization: The Rise of Islam to 1798
10. HIS 248 History of Islam and Middle East Peoples, 1250 to the Present
    RAE 330 The Arab Awakening
11. HIS 270 Early Middle Ages
    A-H 320 Early Medieval Art
12. HIS 271 Later Middle Ages
    A-H 321 Romanesque and Gothic Art
13. MUS 301 Appalachian Music
    ENG 478G Appalachian Folklore
14. PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
    CLA 426G Classical Drama: Tragedy and Comedy in Greece and Rome
15. PHI 305 Health Care Ethics
    HIS 584 The Rise of Scientific Medicine in the United States
16. RAE 380 Survey of 19th Century Russian Literature (in English)
    HIS 537 Intellectual and Cultural History of Russia from 1800 to Present
17. RAE 390 Modern Russian Literature (in English)
    HIS 535 Russia in the Twentieth Century II
18. HIS 519 The Era of the Renaissance
    plus one of the following:
    - A-H 330 Italian Renaissance Art
    - A-H 331 Northern European Renaissance Art
19. FR 304 Introduction to French Literature I
    HIS 540 History of Modern France to 1815
20. FR 305 Introduction to French Literature II
    HIS 541 History of Modern France Since 1815
21. HMN 301 Gaines Seminar in the Humanities I
    HMN 302 Gaines Seminar in the Humanities II
22. MUS 325 Shakespeare and Music
    ENG 425G Shakespeare Survey

#### Natural and Life Sciences

23. GEN 104 Plants, Soils, and People: A Global Perspective
    BIO 106 Principles of Plant Biology
24. AST 191 The Solar System
    GLY 102 Historical Geology (prereq: GLY 101/111)
25. BIO/PLS 210 The Life Processes of Plants
    GEN 104 Plants, Soils, and People: A Global Perspective

#### Social Sciences

26. COM 325 Business and Industrial Communication
    SOC 342 Organizations in Society
27. FAM 253 Human Sexuality: Development, Behavior and Attitudes
    ANT 255 Human Sexuality in Cross-Cultural Perspective
28. GEN 101 The Economics of Food and Agriculture
    plus one of the following:
    - SOC 101 Introductory Sociology
    - GEN 102 The Dynamics of Rural Social Life
29. GEO 332 Geography of Southeast Asia
    PS 421G Government and Politics of Southeast Asia
30. NFS 101 Food and Nutrition for Man
    ANT 235 Food and Culture
31. ANT 235 Food and Culture
    NFS 212 Introductory Nutrition

#### Combined Fields

32. GEO 210 Pollution, Hazards and Environmental Management
    FOR 100 Introduction to Forestry
33. PHI 330 Professional Ethics
    plus one of the following:
    - SW 222 Development of Social Welfare
    - SW 322 Social Work and Social Welfare
34. PHI 337 Introduction to Legal Philosophy
    plus one of the following:
    - JAT 531 Law of the Press
    - HIS 572 American Legal History
    - HIS 573 American Constitutional History
    - PS 463G The American Judicial Process
    - PS 461G Civil Liberties
35. PHI 562 Philosophical Problems in the Social and Behavioral Sciences
    SOC 452G Contemporary Social Theory
36. PS 461G Civil Liberties
    HIS 573 American Constitutional History
37. PS 463G The American Judicial Process
    HIS 572 American Legal History
38. PS 453G Urban Government and Politics
    HIS 581 U.S. Urban History Since 1865
39. PHI 350 Death, Dying, and the Quality of Life
    plus one of the following:
    - PSY 223 Developmental Psychology
    - PSY 331 Psychology of Adjustment
40. WS 200 Introduction to Women's Studies in the Social Sciences
    WS 201 Introduction to Women's Studies in the Arts and Humanities
41. BIO 152 Principles of Biology II
    PHI 361 Biology and Society
42. Any two of the following:
    - ENG 375 The Woman Writer
    - SOC 335 Women and Men in Society
    - ANT 401 Sex Roles in Cross-Cultural Perspective
43. BIO 102 Human Ecology
    SOC 260 Populations, Resources and Change
44. PHY 231 General University Physics
    PHI 251 Philosophy and Classical Physics

45. EPE 317 History of Education
SOC 235 Inequality in Society
46. GEO 130 Physical Geography
plus one of the following:
- GLY 101/111 Physical Geology and Lab
- GLY 240 Elementary Geology for Engineers

47. PHI 320 Symbolic Logic I
EE 280 Design of Logic Circuits
48. HIS 573 American Constitutional History
PS 465G Constitutional Politics
49. HSM 241 Health and Medical Care Delivery Systems
PHI 305 Health Care Ethics
50. BSC 331 Behavioral Factors in Health and Disease
PHR 303 History and Ethics of Pharmacy

## OPTION B - Clustered Courses

Students may prefer to satisfy **one** of the Disciplinary requirements and the six-hour Cross-Disciplinary requirement by taking two designated sequences for a total of twelve hours. This cluster arrangement is a simple combination of, for example, a six-credit sequence in American literature plus a six-credit sequence in American history or the sequence in biology plus the sequence in chemistry. Students choosing this option will not reduce the number of hours in University Studies but will develop a more coherent understanding of an area of study than would otherwise be the case. Taking only one semester of a cluster is equivalent to taking one of the pairs listed under B below. Current acceptable clusters on the Lexington campus are:

1. **American Studies**
(any **two** of the following sequences for 12 hours)
- HIS 108/109 History of the U.S. Through 1865/Since 1865
- ENG 251/252 Survey of American Literature I/II
- A-H 342 American Art/TA 283 American Theatre/ MUS 206 American Music (select two)

2. **Western Traditions**
(any **two** of the following sequences for 12 hours)
- HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present
- ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
- PHI 260/270 History of Philosophy I/II: From Greek Beginnings to the Middle Ages/from the Renaissance to the Present Era
- MUS 201/202 Music in Western Culture to 1700/1700-Present
- A-H 105/106 Ancient Through Medieval Art/ Renaissance Through Modern Art
- TA 380/381 History of Theatre I/II

3. AST 191 The Solar System
AST 192 Galactic and Extra-Galactic Astronomy
HIS 106 Western Culture: Science and Technology I
HIS 107 Western Culture: Science and Technology II
4. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
HIS 230 The Hellenistic World and Rome to the Death of Constantine
CLA 210 The Art of Greece and Rome
CLA 261 Literary Masterpieces of Greece and Rome
5. HIS 270 Early Middle Ages
HIS 271 Later Middle Ages
A-H 320 Early Medieval Art
A-H 321 Romanesque and Gothic Art
6. BIO 150 Principles of Biology I
BIO 152 Principles of Biology II
CHE 105 General College Chemistry I
CHE 107 General College Chemistry II
CHE 115 General Chemistry Laboratory

## V. CROSS-CULTURAL REQUIREMENT

The principal objective of the Cross-Cultural portion of University Studies is to enable students to identify and describe some of the major dimensions of a **non-Western or Third World culture.**

A-H 310 Art and Archaeology of Egypt and Western Asia
ANT 160 Tribal Peoples in the Modern World
ANT 161 The World of Peasants
ANT 221 Native People of North America
ANT 241 Origins of Old World Civilization
ANT 242 Origins of New World Civilization
ANT 312 Comparative Civilizations
ANT 320 Andean Civilization
ANT 322 Aztec and Maya Civilization
ANT 323 Peoples of the Pacific Islands
ANT 327 Civilization and Culture of India
ANT 338 Peoples of the Near East
ANT 420 Contemporary Latin American Cultures
ANT 431G Cultures and Societies of Sub-Saharan Africa
DMT 247 Interdisciplinary Approach to Dress
ENG 264 Major Black Writers
ENG 383 Japanese Film
ENG 473G Survey of World Folklore
EPE 555 Comparative Education
FAM 258 Child Development and Family Life in Japan and China
GEO 160 Lands and Peoples of the Non-Western World
GEO 260 Third World Development
GEO 324 Geography of Central and South America
GEO 328 Geography of the Middle East and North Africa
GEO 330 Geography of South Asia
GEO 332 Geography of Southeast Asia
GEO 333 Geography of East Asia
GEO 336 Geography of Sub-Saharan Africa
HIS 206 History of Colonial Latin America, 1492-1810
HIS 207 History of Modern Latin America, 1810 to Present
HIS 247 History of Islam and Middle East Peoples, 500-1250 A.D.
HIS 248 History of Islam and Middle East Peoples, 1250 to the Present
HIS 254 History of Sub-Saharan Africa
HIS 295 East Asia to 1800
HIS 296 East Asia Since 1800
HIS 505 Ethnohistory of the Native American Southeast
HIS 536 Intellectual and Cultural History of Russia to 1800
HIS 549 History of the Middle East: 1952 to Present
HIS 561 The Intellectual and Cultural History of Latin America
HIS 562 Modern Mexico
HIS 593 East Asian History Since World War II
HIS 597 Westerners in East Asia, 1839 to the Present
HIS 598 China in Revolution, 1895-1976
HUM 230 Twentieth Century Japanese Literature (cross-cultural credit available only at Somerset Community College)
LAS 201 Introduction to Latin America
MUS 330 Music of the World (subtitle required)
PHI 343 Asian Philosophy
PS 212 Culture and Politics in the Third World
PS 417G Survey of Sub-Saharan Politics
PS 420G Governments and Politics of South Asia
PS 428G Latin American Government and Politics
RAE 270 Introduction to Russian Culture
RAE 280 Russian and Soviet Culture of the 20th Century
RAE 328 Islamic Civilization: The Rise of Islam to 1798
RS/ANT 130 Introduction to Comparative Religion
SOC 380 Development of Non-Western Societies
SPI 314 Civilization of Spanish America
UK 301 Cross-Cultural Studies (subtitle required)

## COMMUNITY COLLEGE COURSES (for transfer students)

The following Cross-Disciplinary pairs or clusters have been approved for specific community colleges. Such approval does not mean that comparable pairings have been endorsed for the main campus or for other community colleges. In some instances, not all sections of a course are Cross-Disciplinary. Students should check community college schedules of classes and consult their advisers. Those who take a cluster (12 hours) satisfy the humanities requirement AND the cross-disciplinary requirement. Those who take a pair or half a cluster (6 hours) satisfy only the cross-disciplinary requirement.

**Ashland Community College**

1. ENG 252 Survey of American Literature II
   HIS 109 History of the United States Since 1865

Clustered Courses – British Studies:
ENG 221/222 Survey of English Literature I and II
HIS 202/203 History of the British People to the Restoration/Since the Restoration

**Elizabethtown Community College**

1. ANT 121 Introduction to Cultural Anthropology
   BIO 102 Human Ecology
2. PS 235 World Politics
   ENG 161 Introduction to Literature
3. WS 200 Introduction to Women's Studies in the Social Sciences
   WS 201 Introduction to Women's Studies in the Arts and Humanities

Clustered Courses – American Studies:
ENG 251/252 Survey of American Literature I and II
HIS 108/109 History of the United States Through 1865/Since 1865

**Hazard Community College**

1. ENG 251 Survey of American Literature I
   HIS 108 History of the United States Through 1865
2. ENG 252 Survey of American Literature II
   HIS 109 History of the United States Since 1865
3. WS 200 Introduction to Women's Studies in the Social Sciences
   WS 201 Introduction to Women's Studies in the Arts and Humanities

Clustered Courses – Western Traditions:
1. ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present

plus one of the following sequences:
- HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present
- HIS 106/107 Western Culture: Science and Technology I and II

**Henderson Community College**

1. BIO 110 Introduction to Human Biology and Health
   PHL 110 Bioethics: Moral Issues in Health Care

**Hopkinsville Community College**

Clustered Courses – Western Traditions:
- ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
- HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present

**Jefferson Community College—Downtown**

1. GE 170 Art Appreciation
   MUS 100 Introduction to Music

Clustered Courses:
1. American Studies
   - ENG 251/252 Survey of American Literature I and II
   - HIS 108/109 History of the United States Through 1865/Since 1865
2. British Studies
   - ENG 221/222 Survey of English Literature I and II
   - HIS 202/203 History of the British People to the Restoration/Since the Restoration
3. Western Traditions
   - ENG 161/261 Introduction to Literature/Survey of Western Literature from the Greeks Through the Renaissance
   - HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present

**Lexington Community College**

1. HIS 104 A History of Europe Through the Mid-SeventeenthCentury
   ENG 261 Survey of Western Literature from the Greeks Through the Renaissance
2. HIS 108 History of the United States Through 1865
   ENG 251 Survey of American Literature I
3. WS 200 Introduction to Women's Studies in the Social Sciences
   WS 201 Introduction to Women's Studies in the Arts and Humani ties

Clustered Courses:
1. American Studies
   - ENG 251/252 Survey of American Literature I and II
   - HIS 108/109 History of the United States Through 1865/Since 1865

Lexington Community College - Clustered Courses continued:
2. British Studies
   - ENG 221/222 Survey of English Literature I and II
   - HIS 202/203 History of the British People to the Restoration/Since the Restoration
3. Western Traditions
   - ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
   - HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present

**Madisonville Community College**

Clustered Courses – American Studies:
ENG 251/252 Survey of American Literature I and II
HIS 108/109 History of the United States Through 1865/Since 1865

**Maysville Community College**

1. GEN 104 Plants, Soils, and People: A Global Perspective
   BIO 106 Principles of Plant Biology
2. GEN 101 The Economics of Food and Agriculture
   GEN 102 The Dynamics of Rural Social Life

Clustered Courses:
1. American Studies
   - ENG 251/252 Survey of American Literature I and II
   - HIS 108/109 History of the United States Through 1865/Since 1865
2. Western Traditions

any two of the following sequences for 12 hours:
1. A-H 105/106 Ancient Through Medieval Art/Renaissance Through Modern Art
2. ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
3. HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present

**Owensboro Community College**

1. PS 101 American Government
   ENG 281 Introduction to Film

Clustered Courses – Western Traditions:
any two of the following sequences for 12 hours:
1. HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present
2. ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
3. PHI 260/270 History of Philosophy I/II: From Greek Beginnings to the Middle Ages/from the Renaissance to the Present Era

**Paducah Community College**

Clustered Courses – American Studies:
- ENG 251/252 Survey of American Literature I and II
- HIS 108/109 History of the United States Through 1865/Since 1865

**Prestonsburg Community College**

Clustered Courses:
1. American Studies
   - ENG 251/252 Survey of American Literature I and II
   - HIS 108/109 History of the United States Through 1865/Since 1865
2. Western Traditions
   - ENG 261/262 Survey of Western Literature from the Greeks Through the Renaissance/from 1660 to the Present
   - HIS 104/105 A History of Europe Through the Mid-Seventeenth Century/from the Mid-Seventeenth Century to the Present

**Somerset Community College**

1. HIS 105 A History of Europe from the Mid-Seventeenth Century to the Present
   ENG 262 Survey of Western Literature from 1660 to the Present

Clustered Courses – American Studies:
- ENG 251/252 Survey of American Literature I and II
- MUS 206/TA 283 American Music/American Theatre

**Southeast Community College**

Clustered Courses – American Studies:
- ENG 251/252 Survey of American Literature I and II
- HIS 108/109 History of the United States Through 1865/Since 1865

# CURRICULA AND DEGREE REQUIREMENTS

# AGRICULTURE

*C. Oran Little, Ph.D., is Dean and Director of the College of Agriculture; Andrew J. Hiatt, Ph.D., is Associate Dean for Administration; James A. Boling, Ph.D., is Associate Dean for Research; Walter J. Walla, Ph.D., is Associate Dean for Extension; Joe T. Davis, Ph.D., is Associate Dean for Instruction.*

The research, teaching, extension, and regulatory functions of the College of Agriculture are combined into a coordinated, mutually supporting program of undergraduate and graduate education. Teaching in this college is so related to the other functions that the student has a unique opportunity to broaden his or her background in the areas of research and application of scientific findings in laboratories, greenhouses, field plots and feed lots.

### Admission

All students planning to study any phase of agriculture, including forestry and preveterinary medicine, are admitted directly into the College of Agriculture. Application for admission is made through the Undergraduate Admissions Office.

Students interested in the Landscape Architecture program must meet all requirements for admission to the University. In addition, enrollment in the landscape architecture program is determined by a selective admission procedure. Applicants are selected on a competitive basis as determined by potential success in the program.

### Accreditation

The undergraduate Forestry program at the University of Kentucky is accredited by the Society of American Foresters. The Landscape Architecture program is accredited by the American Society of Landscape Architects and meets all the requirements for licensing of landscape architects in Kentucky and other states. The Food Science program is accredited by the Institute of Food Technologists.

### Undergraduate Programs in Agriculture

The University of Kentucky grants the following degrees in the College of Agriculture:

- Bachelor of Science in Agriculture
- Bachelor of Science in Agricultural Economics
- Bachelor of Science in Animal Sciences
- Bachelor of Science in Food Science
- Bachelor of Science in Forestry
- Bachelor of Science in Landscape Architecture
- Bachelor of Science in Plant and Soil Science

Also available to students are minors in agriculture, agricultural economics, agronomy, animal sciences, food science, horticulture, pest management, and rural sociology.

Students in agricultural engineering are enrolled in the College of Engineering.

### Undeclared Majors

Students who are interested in agricultural study but uncertain about a major should work closely with advisers in the College of Agriculture. With careful course selection, students can work toward fulfilling general requirements while exploring the various areas of study in agriculture and natural resources.

### Scholarships and Financial Aid

The College of Agriculture offers scholarship awards to students on the basis of academic accomplishment, financial need, and involvement in extracurricular activities. Many of the departments in the college employ students in laboratories, greenhouses, barns, and field work in connection with the research program in agriculture. Information about scholarships, awards, and work opportunities is available in the Office of the Associate Dean for Instruction.

### Academic Advising

Students in the College of Agriculture are advised by selected faculty in the department of the student's major. Each student's academic plan and records are maintained in the Associate Dean for Instruction's office, N-6 Ag. Science Center. Students needing assistance selecting an adviser or general information about academics may come to the Associate Dean's office.

### Graduate Work

The College of Agriculture offers the Master of Science degree in all college departments.

Doctor of Philosophy degrees are offered in the following areas: agricultural economics, agricultural engineering, animal sciences, crop science, entomology, plant pathology, plant physiology, sociology, soil science, and veterinary science. For more information, students should see *The Graduate School Bulletin.*

Inquiries about programs or majors within the College of Agriculture may be directed to:

**Office of the Associate Dean for Instruction**
**N-6 Ag. Science Center**
**University of Kentucky**
**Lexington, KY 40546-0091**
**(606) 257-3469 or (606) 257-3468**

## REQUIREMENTS FOR THE B.S. DEGREE IN AGRICULTURE

Students pursuing the Bachelor of Science in Agriculture may pursue the Agricultural Education, Communication and Leadership program, or individualized programs in agriculture such as Agricultural Biotechnology, Entomology, or Natural Resource Conservation and Management.

### Graduation Requirements

To earn a Bachelor of Science in Agriculture, the student must have a minimum of 128 credit hours with at least a 2.0 grade-point standing. A minimum of 48 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree.

All students pursuing the Bachelor of Science in Agriculture must complete the following requirements:

1. University Studies Program (USP)
2. College requirements
   Communications: GEN 100 and GEN 200 (6 hours)
   one course in business or technical writing
3. Agriculture Major (minimum of 24 hours including 3 hours in a 400-level capstone course)
4. Specialty support courses outside

major department (minimum of 21 hours)

5. Electives and/or Preprofessional requirements (10-40 hours)
6. Each student is required to develop an acceptable plan of study during the sophomore year that identifies the program of studies to be followed in the junior and senior years. The plan is to be approved by the appropriate undergraduate curriculum committee or the Associate Dean for Instruction in situations where there is no undergraduate curriculum committee.

Information on each major program (premajor, major, and specialty support course requirements) follows. Students may obtain additional information on programs and recommended plans of study from the Associate Dean for Instruction.

## B.S. in Agriculture with a major in AGRICULTURAL EDUCATION, COMMUNICATION, AND LEADERSHIP

### Degree Requirements

In addition to satisfying University Studies requirements and the college requirements listed previously, each student must complete the following:

### College Requirements

ENG 203 Business Writing ..... 3
GEN 100 Issues in Agriculture: The Development of Modern Agriculture* ..... 3
GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry* ..... 3

*These courses also satisfy the University Studies Oral Communication requirement.

### Core Requirements

GEN 101 The Economics of Food and Agriculture ..... 3
GEN 102 The Dynamics of Rural Social Life ..... 3
NFS 101 Food and Nutrition for Man ..... 3
FAM 250 Consumer Issues ..... 3
AED/HEE/AGC/SOC 362 Practicum in Vocational Education, Agricultural Communications, and Leadership ..... 3
AGC/HES 320 Survey of Agriculture and Consumer Media ..... 3

### Option Requirements

### Agricultural Communications Option

AGC 400 Agricultural Communications Campaigns ..... 3
AGC 490 Seminar in Agricultural Communications ..... 3
COM/SOC 249 Mass Media and Mass Culture ..... 3
COM/SOC/EDC 449 Social Processes and Effects of Mass Communication ..... 3
JAT 101 Introduction to Communication Media ..... 3
JAT 204 Writing for the Mass Media ..... 3
JAT 301 News Reporting ..... 3
JAT 520 Economics of Information ..... 3

### Specialty Support Requirements: 24-35 hours

During your second year you are required to identify an area of specialty support and, with your adviser's approval, develop a plan of study that details the course work to be taken during your third and fourth years. These areas include: (1) News/Editorial; (2) Advertising/Public Relations; and (3) Electronic Media. It is also recommended that you take at least two courses from three different departments in the College of Agriculture.

### Electives

Electives should be selected to complete the 128 hours required for graduation.

### Agricultural Education Option

AED 210 Introduction to Vocational Education ..... 3
AED 580 Methods of Teaching Vocational Education I ..... 3
AED 586 Methods in Teaching Vocational Education II ..... 3
AED 501 Practicum in Vocational Education ..... 12

### Specialty Support Requirements: 24-35 hours

During your second year you will develop a plan of study, with your adviser's approval, that details the course work you will take during your third and fourth years. It is recommended that you complete at least two courses from five different agriculture areas. Your adviser will make recommendations, but the specific courses you take will depend on your interests and academic goals.

### Teacher Certification

Besides receiving the B.S. in Agriculture students completing the requirements can obtain a letter of endorsement to teach agricultural education. Requirements for teacher certification are as follows:

To be certified you must be admitted to the teacher education program (TEP). To be admitted, you must have completed, or complete during the semester in which you apply, 60 semester hours of course work and AED 210 Introduction to Vocational Education and have at least a 2.5 grade-point standing (on a 4.0 scale).

Applicants are evaluated on an interview, recommendations, scholastic achievement, demonstrated skills, and professional commitment and goals. In addition, you must have three years of agricultural experience since the age of 14.

You must also complete at least 50 hours in agriculture courses, including six hours in each of the following areas: animal sciences, plant sciences, soils, agricultural engineering, and agricultural economics (including Farm Management or Agribusiness Management). A professional education component is also required.

You must successfully complete assessment items and portfolio items as required. Further, you must successfully complete the three basic sections of the National Teachers Exam and a technical agriculture exam, scoring above cutoff scores specified by the State Board of Education for each exam. After completing these exams, students hired by Kentucky schools will complete a one-year paid internship as a first-year teacher and will be evaluated at least three times by a three-person committee before certification is completed.

Other agriculture majors can also qualify to teach agricultural education provided they meet current certification requirements.

**Note:** Because graduation and teacher certification requirements change frequently, students should obtain more complete information from their advisers.

### Electives

Electives should be selected to complete the 128 hours required for graduation.

### Public Service and Leadership Option

CEX 501 Principles of Cooperative Extension ..... 3
PS 101 American Government ..... 3
PS 487G Introduction to Public Administration ..... 3
PS 489G The Analysis of Public Policy ..... 3
SOC 499 Topical Senior Seminar: Community Development and Leadership ..... 3
SOC/PSY 444 Social Psychology ..... 3
SOC 542 Human Relations in Administration of Organizations ..... 3
One other course in sociology ..... 3

### Specialty Support Requirements: 24-35 hours

During your sophomore year you will identify an area of specialty support and, with your adviser's approval, develop a plan of study from one of four options:

- Youth and Family Studies
- Community and Natural Resource Development
- Public Policy and Administration
- General Agriculture

Recommended courses for each option are available, but the specific courses will depend on your interests and academic goals.

### Electives

Electives should be selected to complete the 128 hours required for graduation.

## B.S. in Agriculture with a major in INDIVIDUALIZED PROGRAMS

Individualized program opportunities have been developed to assist students with academic goals that cross several disciplines.

The procedure for entering an individualized program is as follows:

1. Each student must apply to the Associate Dean for Instruction. The student will receive an explanation of the program and its objectives, and the possible risks involved, including prospective employment and acceptance for advanced graduate degree work.

2. Students who continue their interest in the individualized program develop, with the assistance of an adviser, the plan which they propose to follow.

3. This plan must be submitted to the Associate Dean for consideration and possible approval. (The basis for approval will be information from the Counseling and Testing Center, interviews with the student and the soundness of the program for the student's stated academic goals.)

4. Approval of the student's program by the Associate Dean will admit the student to the individual program option.

## BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS

The Agricultural Economics program enables graduates to pursue careers in agribusiness and food industries, interna-

tional marketing and trade, or farm management and production. Opportunities are also available in public policy for agriculture and rural America and environmental economics. These career opportunities may be found in both the private and public sectors. Economic theory is applied to problems concerning the production, marketing, and distribution of agricultural and food products and also to public policy and natural resource and environmental issues facing rural communities.

Students may choose to study in one of the following emphasis areas:

Agribusiness Management and Food Marketing, International Agricultural Marketing and Trade, Farm Management, Agricultural Financial Management, Agricultural and Rural Public Policy, Environmental and Resource Economics or Individualized Programs.

### Graduation Requirements

To earn the Bachelor of Science in Agricultural Economics, the student must have a minimum of 128 credit hours with at least a 2.0 grade-point standing. A minimum of 48 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete college, departmental and support requirements.

**College Requirements**

ENG 203 Business Writing **or**
ENG 204 Technical Writing ..... 3
GEN 100 Issues in Agriculture: The Development of Modern Agriculture* ..... 3
GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry* ..... 3

*These courses also satisfy the University Studies Oral Communication requirement.

| Premajor Requirements | Hours |
|---|---|
| ECO 201*/202 Principles of Economics I and II | 6 |
| MA 113* Calculus I | 4 |
| **or** | |
| MA 123* Elementary Calculus and Its Applications **and** | |
| MA 162 Finite Mathematics and Its Applications | 6 |

*These courses can also be used to meet University Studies and college requirements.

| Major Requirements | Hours |
|---|---|
| Required | 28 |
| AEC 302 Agricultural Management Principles | 4 |
| AEC 303 Microeconomic Concepts in Agricultural Economics | 3 |
| AEC 304 Macroeconomic Concepts in Agricultural Economics | 3 |
| AEC 305 Food and Agricultural Marketing Principles | 3 |
| AEC 300 Topics in Agricultural Economics (Subtitle required) | 3 |

**plus** 12 additional hours in agricultural economics courses at or above the 300-level (to fulfill the student's area of emphasis).

| Specialty Support | Hours |
|---|---|
| Required | 27 |
| ACC 201 Principles of Accounting | 3 |
| STA 291 Statistical Method | 3 |
| ECO 391 Economic and Business Statistics | 3 |

**plus** 18 additional hours selected from the following departments: ACC, AEN, AGR, ASC, COM, DIS, ECO, ENT, FIN, FOR, HOR, MA, MGT, MKT, PS, PSY, SOC, VS (to fulfill the student's area of interest).

### Course Plan

As an agricultural economics major you are required to develop an acceptable plan of study in your chosen area of emphasis for your junior and senior years. Submit the plan for approval to the department's Undergraduate Program Committee and the Director of Undergraduate Studies during the second semester of your sophomore year.

If you are an upper division transfer student (from another university or from another UK college or department) then you will submit your plan for approval during the first semester you are enrolled in the department.

Consult your academic adviser in developing your plan of study.

### Business and Economics Electives

Students whose program consists of more than 32 semester hours of course work from the College of Business and Economics must first consult with the Associate Dean for Undergraduate Studies in the College of Business and Economics before enrolling in the additional hours.

## BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

The Agricultural Engineering curriculum is administered jointly by the College of Agriculture and the College of Engineering. Agricultural Engineering provides an essential link between the biological sciences and the engineering profession. This linkage is necessary for the development of food and fiber production and processing systems which preserve our natural resource base. Students in the agricultural engineering program can pursue one of four areas of specialization: Bioenvironmental Engineering, Food and Bioprocess Engineering, Machine Systems Automation Engineering and Thermal Environmental Engineering.

The degree requirements and curriculum are listed in the *College of Engineering* section of this Bulletin.

## BACHELOR OF SCIENCE IN ANIMAL SCIENCES

Animal Sciences involves studying and applying the basic principles of nutrition, reproduction, and genetics to the production and management of horses, dairy and beef cattle, sheep, swine, and poultry. As a major, you will have the opportunity to pursue specific interests by selecting one of three options in animal production, dairy production or equine production

No one program fits all Animal Sciences students. Animal Sciences students come from varied backgrounds. Interests range from livestock and poultry production and management to marketing and public relations; from public education and extension to graduate training in research and teaching and veterinary medicine. No matter what livestock species you have an interest in, the Animal Sciences major will allow you to combine your interest with your desire for an exciting and rewarding career.

### Graduation Requirements

To earn the Bachelor of Science in Animal Sciences, the student must have a minimum of 128 credit hours with at least a 2.0 grade-point standing. A minimum of 48 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete college, departmental and specialty support requirements.

**College Requirements**

ENG 203 Business Writing ..... 3
GEN 100 Issues in Agriculture: The Development of Modern Agriculture* ..... 3
GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry* ..... 3

*These courses also satisfy the University Studies Oral Communication requirement.

In addition, the student must propose a plan of study for the junior and senior years.

| Premajor Requirements | Hours |
|---|---|
| **Mathematics** | |
| MA 113 Calculus I **or** | 4 |
| MA 109 College Algebra **and** | 3 |
| MA 123 Elementary Calculus and Its Applications | 3 |
| **Biology** | |
| BIO 150/152 Principles of Biology I and II | 6 |
| **Chemistry** | |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |

### Major Requirements

A minimum of 25 hours of departmental courses is required for each option. Required courses in the three areas are as follows:

| Animal Production Option | Hours |
|---|---|
| ASC 106 Introductory Animal Sciences | 3 |
| ASC 120 Introductory Animal Science Laboratory | 1 |
| ASC 300 Meat Science | 5 |
| ASC 362 Animal Breeding | 3 |
| ASC 364 Reproductive Physiology of Farm Animals | 3 |
| ASC 378 Animal Nutrition | 3 |
| ASC 380 Feeds and Feeding | 3 |
| ASC 470 Capstone for Animal Agriculture | 3 |
| **plus** one of the following: | |
| ASC 404G Sheep Science | 4 |
| ASC 406 Beef Cattle Science | 4 |
| ASC 408G Swine Science | 3 |
| ASC 410G Horse Sciences | 3 |
| ASC 420G Dairy Cattle Science | 3 |

**Specialty Support**

ASC/AGR/ENT 360 Genetics ..... 3
CHE 230 Organic Chemistry I ..... 3
**or** CHE 236 Survey of Organic Chemistry ..... 3

Select from the following with adviser's approval:
BCH 401G Fundamentals of Biochemistry ..... 3
BIO 340 Comparative Anatomy ..... 5
CHE 226 Analytical Chemistry ..... 3-5
CHE 231 Organic Chemistry Laboratory I ..... 2
CHE 232 Organic Chemistry II ..... 3
CHE 233 Organic Chemistry Laboratory II ..... 2
PHY 211/213 General Physics ..... 10
Statistics (STA 291 **or** STA 292, 293, 294) ..... 3

Courses at the 200-level or above may be selected with adviser's consent from related areas or from the following majors: Agricultural Economics, Agricultural Engineering, Agronomy, Entomology, Food Science, Veterinary Science.

**Dairy Production Option** **Hours**

ASC 106 Introductory Animal Sciences ..... 3
ASC 120 Introductory Animal Science Laboratory ..... 1
ASC 362 Animal Breeding ..... 3
ASC 364 Reproductive Physiology of Farm Animals ..... 3
ASC 378 Animal Nutrition ..... 3
ASC 380 Feeds and Feeding ..... 3
ASC 420G Dairy Cattle Science ..... 3
ASC 470 Capstone for Animal Agriculture ..... 3
ASC 564 Milk Secretion ..... 3

**Specialty Support**

ASC/AGR/ENT 360 Genetics ..... 3
CHE 230 Organic Chemistry I ..... 3
**or** CHE 236 Survey of Organic Chemistry ..... 3

Select from the following with adviser's approval:
BCH 401G Fundamentals of Biochemistry ..... 3
BIO 340 Comparative Anatomy ..... 5
CHE 226 Analytical Chemistry ..... 3-5
CHE 231 Organic Chemistry Laboratory I ..... 2
CHE 232 Organic Chemistry II ..... 3
CHE 233 Organic Chemistry Laboratory II ..... 2
PHY 211/213 General Physics ..... 10
Statistics (STA 291 **or** STA 292, 293, 294) ..... 3-4

Courses at the 200-level or above may be selected with adviser's consent from related areas or from the following majors: Agricultural Economics, Agricultural Engineering, Agronomy, Entomology, Food Science, Veterinary Science.

**Equine Production Option** **Hours**

ASC 106 Introductory Animal Sciences ..... 3
ASC 120 Introductory Animal Sciences Laboratory ..... 1
ASC 310 Equine Anatomy and Conformation ..... 2
ASC 320 Equine Management ..... 3
ASC 362 Animal Breeding ..... 3
ASC 364 Reproductive Physiology of Farm Animals ..... 3
ASC 378 Animal Nutrition ..... 3
ASC 380 Feeds and Feeding ..... 3
ASC 410G Equine Science ..... 3
ASC 470 Capstone for Animal Agriculture ..... 3

**Specialty Support**

ASC/AGR/ENT 360 Genetics ..... 3
CHE 230 Organic Chemistry I **or** ..... 3
CHE 236 Survey of Organic Chemistry ..... 3

Select from the following with adviser's approval:
BCH 401G Fundamentals of Biochemistry ..... 3
BIO 340 Comparative Anatomy ..... 5
CHE 226 Analytical Chemistry ..... 3-5
CHE 231 Organic Chemistry Laboratory I ..... 2
CHE 232 Organic Chemistry II ..... 3
CHE 233 Organic Chemistry Laboratory II ..... 2
PHY 211/213 General Physics ..... 10
Statistics (STA 291 **or** STA 292, 293, 294) ..... 3

Courses at the 200-level or above may be selected with adviser's consent from related areas or from the following majors: Agricultural Economics, Agricultural Engineering, Agronomy, Entomology, Food Science, Veterinary Science.

**Electives**

Electives should be selected to complete the 128 semester hours required for graduation.

## BACHELOR OF SCIENCE IN FOOD SCIENCE

Food science is the study of the transformation of biological materials into food products acceptable for human consumption. This requires studying diverse scientific disciplines related to food, including chemistry, engineering, microbiology, biochemistry, toxicology, and management; and effectively applying the industrial and practical aspects to product development, food processing, preservation, and marketing. The program is administered by the Department of Animal Sciences and offers training in the basic sciences and in the fundamentals of food science.

Career opportunities in food industries include: management, research and development of new food products and ingredients, process supervision, quality control, procurement, distribution, sales, and merchandising. Positions include sales and services in allied industries; consulting and trade association activities; and promotional and educational services. Governmental agencies employ food scientists whose work is directed towards research, regulatory control, and the development of food standards.

### Graduation Requirements

To earn the Bachelor of Science in Food Science, the student must complete a minimum of 128 semester hours with at least 48 hours from courses at the 300 level and above. A 2.0 grade-point standing (on a 4.0 scale) is necessary and remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete premajor, major and specialty support requirements.

The Food Science program meets the requirements for accreditation by the Institute of Food Technologists and the National Organization of Food Science Professionals. A similar program with emphasis on human nutrition is offered by the Department of Nutrition and Food Science in the College of Human Environmental Sciences.

**University Studies Requirements** **Hours**

**Inference and Communication Skills**

ENG 101/102 Writing I and II ..... 6
MA 123 Elementary Calculus and Its Applications ..... 3
Oral Communication Requirement* ..... 3

*Three hours from the approved list. (Students who begin their first academic year in the College of Agriculture will satisfy this requirement with GEN 100 and GEN 200 [under College Requirements]).

**Disciplinary Requirements**

**Area I** – Natural Science
CHE 105/107 General College Chemistry I and II ..... 6
CHE 115 General Chemistry Laboratory ..... 3

**Area II** – Social Science
GEN 101 The Economics of Food and Agriculture ..... 3
Plus one additional course ..... 3

**Area III** – Humanities
Six hours from an approved list ..... 6

**Area IV** – Cross-disciplinary component
BIO 150/152 Principles of Biology I and II* ..... 6

**Area V** – Non-western cultural component
Three hours from an approved list ..... 3

*To be taken as a cluster with CHE 105/107/115

**College Requirements**

ENG 203 Business Writing **or**
ENG 204 Technical Writing ..... 3
GEN 100 Issues in Agriculture: The Development of Modern Agriculture* ..... 3
GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry* ..... 3

*These courses also satisfy the University Studies Oral Communication requirement. If you transfer into the College of Agriculture after completing your first academic year in another UK major or at another university, you are required to take only GEN 200.

**Premajor Requirements**

MA 132 Calculus for the Life Sciences ..... 3
BIO 208 Principles of Microbiology ..... 3
BIO 209 Introductory Microbiology Laboratory ..... 2
CHE 236 Survey of Organic Chemistry ..... 3
NFS 212 Introductory Nutrition ..... 3
PHY 201 General Physics ..... 4
STA 291 Statistical Method ..... 3

**Major Requirements** **Hours**

**Required:**

FSC 107 Introduction to Food Science ..... 3
AEN 340 Principles of Food Engineering ..... 4
NFS 311 Nutritional Biochemistry **or**
BCH 401G Fundamentals of Biochemistry ..... 3
FSC 306 Introduction to Food Processing ..... 4
FSC 434G Food Chemistry ..... 4
FSC 530 Food Microbiology ..... 5
FSC 535 Food Analysis ..... 4
FSC 536 Advanced Food Technology ..... 4

Students must select 22 credits from the following suggested list of support courses:

FSC 304 Animal Derived Foods ..... 5
FSC 395 Special Problem in Animal Science/Food Science ..... 2
FSC 399 Experiential Learning in Animal Sciences/Food Science ..... 1-6
FSC 430G Sensory Evaluation of Foods ..... 3
FSC 538 Food Fermentation and Thermal Processing ..... 4
FSC 540 Food Sanitation ..... 3
AEC 201 Introduction to Farm and Natural Resource Finance ..... 3
AEC 305 Food and Agricultural Marketing Principles ..... 3
AEC 470 Food Retailing, Marketing, and Management ..... 4

| | |
|---|---|
| ASC 360 Genetics | 3 |
| CS 101 Introduction to Computing I | 3 |
| ECO 201 Principles of Economics I | 3 |
| NFS 304 Experimental Foods | 3 |

**Electives**

Elective courses should be selected to satisfy minimum requirements for graduation from the College of Agriculture.

## BACHELOR OF SCIENCE IN FORESTRY

Kentucky boasts many forested areas with famous reputations, such as Natural Bridge, Red River Gorge, Daniel Boone National Forest, and Robinson Forest. Robinson Forest is one of the largest research and educational forests in the eastern United States. It is managed by the Department of Forestry, and as a forestry student at the University of Kentucky all of its resources will be available to you as a unique outdoor laboratory.

The missions of the Department of Forestry are to identify and address the challenges and opportunities facing sustained management of our renewable natural resources, including forests, soils, water, and wildlife. These missions involve three interrelated functions: research, extension, and education. The research goal of the department is to obtain basic and applied information leading to wise and effective management of our natural resources. Forestry extension seeks to inform land owners and the general public about forest stewardship. Forestry education prepares students for careers as forestry and natural resource professionals. The objectives of the required courses in the forestry curriculum are to educate and train students in the communication, managerial, scientific, processing, and administrative skills and principles related to the stewardship and utilization of renewable natural resources. Accomplishment of these objectives will ensure a continuing supply of entry-level professionals for Kentucky and the nation.

The undergraduate (B.S.) program leading to the professional degree in forestry is accredited by the Society of American Foresters (SAF). SAF is the specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation as the accrediting agency for forestry in the United States. Additionally, you may become certified by The Wildlife Society if you choose appropriate elective courses.

### Career Opportunities

Forestry graduates are employed as professional foresters in private forest industries and organizations, consulting companies, and public agencies, including the U.S. Forest Service, Soil Conservation Service, and state, county, or urban forestry programs. Graduates are also qualified to be research technicians in government, university, and private laboratories, or may continue their studies in specialized graduate programs.

The inclusion in the curriculum of management and processing principles makes UK forestry graduates attractive to the forest products industry; graduates are often employed as technical specialists, managers, and marketing and wood procurement personnel.

### Graduation Requirements

The four-year Bachelor of Science program in Forestry consists of 133 semester hours. Eight of these hours are earned while attending a Summer Camp between the third and fourth academic years. This eight-week Summer Camp at Robinson Forest provides practical, in-the-field training and is required of all forestry students.

The curriculum consists of university, preprofessional, professional, and specialty support components. FOR 100, Introduction to Forestry, is required of all undergraduates during their first semester. This course provides a broad overview of forestry. Preprofessional, professional, and specialty support courses provide the skills and understanding to manage forest resources. Electives, chosen with the assistance of your adviser, strengthen your knowledge of basic principles in areas of special interest to you.

| **Premajor Requirements** | **Hours** |
|---|---|
| High school trigonometry **or** MA 112 Trigonometry or equivalent | 0-2 |
| MA 123 Elementary Calculus and Its Applications | 3 |
| MA 162 Finite Mathematics and Its Applications | 3 |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| BIO 150/152 Principles of Biology I and II | 6 |
| BIO 151/153 Principles of Biology Laboratory I and II | 4 |
| PHY 151 Introduction to Physics **or** any higher numbered physics course of 3 or more credit hours | 3 |
| STA 291 Statistical Method | 3 |
| GEN 101 The Economics of Food and Agriculture **or** ECO 201 Principles of Economics I | 3 |
| GEO 210 Pollution, Hazards, and Environmental Management **or** SOC 260 Population, Resources and Change **or** one other departmentally-approved course of 3 or more credit hours | 3 |

| **Major Requirements** | **Hours** |
|---|---|
| FOR 100 Introduction to Forestry | 3 |
| FOR 200 Map Reading and Photogrammetry | 2 |
| FOR 205 Forest and Wildland Soils and Landscapes | 4 |
| FOR 219 Silvics and Tree Identification | 3 |
| FOR 300 Forest Measurements | 4 |
| FOR 340 Forest Ecology | 3 |
| FOR 350 Silviculture | 4 |
| FOR 360 Wood Technology and Utilization | 4 |
| FOR 402 Forest Entomology | 3 |
| FOR 410 Forest Pathology | 3 |
| FOR 425 Timber Management | 4 |
| FOR 430 Forest Wildlife and Range Management | 3 |
| FOR 440 Forest Resources for Recreation | 3 |
| FOR 460G Forest Watershed Management | 3 |
| FOR 480 Integrated Forest Resource Management | 5 |

**Forestry Field Camp†**

| | |
|---|---|
| FOR 375 Taxonomy of Forest Vegetation | 1 |
| FOR 376 Silvicultural Practices | 2 |
| FOR 377 Forest Surveying | 1 |
| FOR 378 Forest Mensuration | 2 |
| FOR 379 Harvest and Utilization of Wood | 2 |

†Attendance at Forestry Field Camp requires completion of the following courses: FOR 200, FOR 205, FOR 219, FOR 300, FOR 340, FOR 350, FOR 360 (grade of C or better required in FOR 200, FOR 205, and FOR 219).

**Specialty Support Requirement**

| | |
|---|---|
| AEC 201 Introduction to Farm and Natural Resource Finance | 3 |

**Electives**

Students complete certain directed electives and free electives to fulfill graduation requirements. Elective courses are selected with the adviser's approval.

## BACHELOR OF SCIENCE IN LANDSCAPE ARCHITECTURE

The profession of landscape architecture has grown out of the tradition of the great garden designers of Italy, France, England, and China to encompass the art and science of design, planning, and management of the land. The *science* of landscape architecture is concerned with the conservation and management of natural resources. The *art* of landscape architecture is concerned with the creation of more enjoyable, comfortable, and safe outdoor areas where human use requires adaptation of the natural environment.

This five-year professional program is accredited by the American Society of Landscape Architects and meets all the requirements for licensing of landscape architects in Kentucky and other states. Landscape architecture employment opportunities may be found in the designing of urban communities, plazas, university campuses, institutional grounds, parks and recreational areas, commercial and industrial sites, and residential communities, as well as in the areas of historic preservation, regional planning, and mine reclamation.

### Admission Requirements

Admission to the University of Kentucky and to the College of Agriculture does not guarantee admission to the Landscape Architecture program. All applicants must be reviewed by the Landscape Architecture Program Chairperson. The number of applicants ultimately admitted is determined by the resources available to pro-

vide high quality instruction. Applicants will be reviewed on a comparative basis. Determination of acceptability into the program is based on the following.

**Entering freshmen and transfer students from degree programs other than Landscape Architecture must:**

1. submit a formal application to the Undergraduate Admissions Office indicating Landscape Architecture as your major;

2. meet the minimum criteria for admission or readmission to the University as specified in this Bulletin (The Landscape Architecture program requires a minimum of a 2.0 grade-point average on a 4.0 scale for eligibility to transfer into the program.); and

3. successfully complete the aptitude testing designated by the Landscape Architecture program.

If a student transferring from another degree program has a background in related design fields, he or she may submit available work, such as a portfolio or other work examples, as an indication of potential success.

**Transfer students from degree programs in Landscape Architecture at other accredited institutions must:**

1. submit a formal application to the University indicating Landscape Architecture as your major;

2. be eligible for admission to the University according to the standards specified in this Bulletin (The Landscape Architecture program requires a minimum of a 2.0 grade-point average on a 4.0 scale for eligibility to transfer into the program.); and

3. submit a portfolio for review which, combined with an evaluation of courses completed, will determine acceptance into the program as well as the level to which the student will be accepted.

### Graduation Requirements

To earn a Bachelor of Science degree in Landscape Architecture, the student must have 145 credit hours with at least a 2.0 grade-point standing. Remedial courses may not be counted toward the total hours required for the B.S. in Landscape Architecture. The program is fully accredited by the Board of Landscape Architectural Accreditation (American Society of Landscape Architects) and meets the registration requirements of the Kentucky State Board of Examiners and Registration of Landscape Architects.

In addition to satisfying University Studies requirements, each student must complete the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| ARC 861/862 Technics and Kinematics/ Building Design | 12 |
| GLY 101 Physical Geology | 3 |
| GLY 111 Laboratory for Physical Geology | 1 |
| GLY 242 Environmental Geology | 3 |
| ECO 201 Principles of Economics I | 3 |
| AEN 103 Basic Principles of Surveying | 2 |
| BIO 106 Principles of Plant Biology or equivalent | 3 |
| GEN 104 Plants, Soils, and People: A Global Perspective | 3 |

| **Departmental Professional Requirements** | |
|---|---|
| LA 205 History of Landscape Architecture | 3 |
| LA 206 Contemporary Landscape Architecture | 3 |
| LA 801 Landscape Architecture Design Studio I— Design Communication | 6 |
| LA 802 Landscape Architecture Design Studio II | 6 |
| LA 810 Landscape Construction I | 4 |
| LA 812 Landscape Construction II | 3 |
| LA 831 Landscape Architecture Design Studio III | 6 |
| LA 832 Landscape Architecture Design Studio IV | 6 |
| LA 901 Regional Land Use Planning and Development | 6 |
| LA 902 Advanced Landscape Architecture Studio I | 6 |
| LA 903 Advanced Landscape Architecture Studio II | 6 |
| LA 950 Professional Practice | 3 |
| Select four courses from the following: | |
| LA 850 Landscape Architecture Graphics | 3 |
| LA 851 Studies in Landscape Architecture: Planting Design | 3 |
| LA 852 Design Communications | 3 |
| LA 853 Topics in Urban Design | 3 |
| LA 895 Independent Work in Landscape Architecture | 1-6 |
| LA 951 Senior Project | 3 |

| **Specialty Support Requirements** | |
|---|---|
| AEC 445G Introduction to Resource and Environmental Economics | 3 |
| ARC 325 Theories of Urban Form | 3 |
| BIO 451G Introductory Ecology | 4 |
| HOR 320 Woody Plants | 4 |
| PLS 366 Fundamentals of Soil Science | 3 |

## BACHELOR OF SCIENCE IN PLANT AND SOIL SCIENCE

The Plant and Soil Science degree program is designed to provide students with the knowledge and skills needed for a career in the production and management of plants and soils for food, fiber, forage, oil, recreation, landscaping and the enhancement of the human environment. Graduates have the technical and scientific skills as well as the communication, computational, leadership, and interpersonal capabilities necessary to function effectively as professionals. Careers are as diverse as they are challenging. Each Area of Emphasis prepares graduates for specific professional opportunities.

### Areas of Emphasis

Students pursuing a Plant and Soil Science degree may choose from the following areas:

- Crops and Livestock
- Crops and Soils
- Horticulture Enterprise Management
- Horticultural Science
- Soil and Water Environmental Science
- Turfgrass Science

### Graduation Requirements

Students must complete a minimum of 128 semester credit hours with at least 48 credit hours from courses at the 300 level or above. In addition to the University Studies and college requirements, students must select an Area of Emphasis with the assistance of an adviser and fulfill the area's program requirements.

| **University Studies Requirements** | **Hours** |
|---|---|
| **Inference and Communication Skills** | |
| MA 123 Elementary Calculus and Its Applications | 3 |
| ENG 101/102 Writing I and II | 6 |
| **Disciplinary Requirements** | |
| **Area I** – Natural Science | |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| **Area II** – Social Science | |
| GEN 101 The Economics of Food and Agriculture | 3 |
| GEN 102 The Dynamics of Rural Social Life | 3 |
| **Area III** – Humanities | |
| From approved list. | |
| **Cross-Disciplinary Requirements** | |
| GEN 104 Plants, Soils, and People: A Global Perspective | 3 |
| PLS 210 The Life Processes of Plants | 3 |
| **Cross-Cultural Requirement** | |
| From approved list. | |

| **College Requirements** | |
|---|---|
| ENG 203 Business Writing | 3 |
| GEN 100 Issues in Agriculture: The Development of Modern Agriculture* | 3 |
| GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry* | 3 |

*These courses also satisfy the University Studies Oral Communication requirement.

| **Core Requirements** | **Hours** |
|---|---|
| PLS 220 Introduction to Plant Identification | 3 |
| PLS 366 Fundamentals of Soil Science | 3 |
| PLS 386 Plant Production Systems | 4 |
| PLS 490 Topics in Plant and Soil Science | 3 |

*Required in Plant and Soil Science curriculum and also satisfies University Studies or College of Agriculture requirements.

### Area of Emphasis (15-31 hours)

In addition to the 31 PLS and GEN credit hours listed above in Major Requirements, students will select an additional 15-31 credit hours from Agronomy (AGR), Horticulture (HOR), or Plant Pathology (PPA) courses. The total credit hours in the major depends upon the student's Area of Interest.

During the sophomore year each student will identify an Area of Emphasis and develop a Plan of Study that details the course work to be taken during the junior and senior years. Examples of Areas of Emphasis include Horticulture Enterprise Management, Crops and Livestock, Crops and Soils, Turfgrass Science, Soil and Water Environmental Science, and Horticul-

tural Science. The Plan of Study must be approved by the undergraduate curriculum committee in the Area of Emphasis.

**Major Support Requirements** (21-39 hours)

To be selected from courses (other than AGR, HOR, PPA) offered by animal science, entomology, veterinary science, natural resource conservation, landscape architecture, agricultural engineering, chemistry, geology, geography, physics, biology, mathematics, statistics, agricultural economics, accounting, management, marketing, and economics. Selection of courses and total credit hours depends upon the student's Area of Emphasis.

## MINORS IN AGRICULTURE

### Minor in Agriculture

Students in this minor must complete 21 credit hours, selected from the following list. Courses must be selected from a minimum of three areas to assure diversity.

**General Agriculture**

| (A maximum of two courses) | Hours |
|---|---|
| ASC 106 Introduction to Animal Sciences | 3 |
| GEN 101 The Economics of Food and Agriculture | 3 |
| GEN 102 The Dynamics of Rural Social Life | 3 |
| GEN 103 Agriculture Pest and Disease Management | 3 |
| GEN 104 Plants, Soils, and People: A Global Perspective | 3 |
| GEN 105 Engineering Applications in Agriculture | 3 |
| FSC 107 Introduction to Food Science | 3 |

**Agricultural Economics**

| | |
|---|---|
| AEC 302 Agricultural Management Principles | 4 |
| AEC 303 Microeconomic Concepts in Agricultural Economics | 3 |
| AEC 305 Food and Agricultural Marketing Principles | 3 |
| AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products | 3 |
| AEC 321 Agricultural Futures Markets | 3 |
| AEC 422 Agribusiness Management | 3 |

**Agricultural Engineering**

| | |
|---|---|
| AEN 320 Agricultural Structures | 3 |
| AEN 340 Principles of Food Engineering | 4 |
| AEN 345 Crop Drying and Processing | 3 |
| AEN 430 Farm Water Management | 3 |

**Agronomy**

| | |
|---|---|
| AGR 360 Genetics | 3 |
| AGR 367 Soil and Water Analysis Laboratory | 3 |

**Animal Sciences**

| | |
|---|---|
| ASC 300 Meat Science | 5 |
| ASC 360 Genetics | 3 |
| ASC 382 Principles of Livestock Nutrition | 3 |
| FSC 306 Introduction to Food Processing | 4 |

**Entomology**

| | |
|---|---|
| ENT 310 Insect Pests of Field Crops | 3 |
| ENT 320 Horticultural Entomology | 3 |
| ENT 340 Livestock Entomology | 2 |
| ENT 402 Forest Entomology* | 3 |

**Forestry**

| | |
|---|---|
| FOR 402 Forest Entomology* | 3 |
| FOR 410 Forest Pathology* | 3 |
| FOR 430 Forest Wildlife and Range Management | 3 |
| FOR 440 Forest Resources for Recreation | 3 |
| FOR 460G Forest Watershed Management | 3 |

**Horticulture**

| | |
|---|---|
| HOR 350 Plant Propagation | 3 |
| HOR 352 Nursery Production | 3 |
| HOR 402 Fruit Crop Production | 3 |
| HOR 460 Greenhouses and Controlled Environments | 2 |
| HOR 510 Vegetable Crop Management | 3 |

**Plant and Soil Science**

| | |
|---|---|
| PLS 366 Fundamentals of Soil Science | 3 |
| PLS 386 Plant Production Systems | 4 |

**Plant Pathology**

| | |
|---|---|
| PPA 400G Principles of Plant Pathology | 3 |
| PPA 410 Forest Pathology* | 3 |

*Cross-listed courses. May satisfy only one departmental requirement.

### Minor in Agricultural Economics

| Preprofessional Requirement | Hours |
|---|---|
| ECO 201 Principles of Economics I | 3 |

**Minor Requirements**

Two courses selected from:

| | |
|---|---|
| AEC 302 Agricultural Management Principles | 4 |
| AEC 303 Microeconomic Concepts in Agricultural Economics | 3 |
| AEC 305 Food and Agricultural Marketing Principles | 3 |

In addition, students should select nine hours from other agricultural economics courses. A maximum of three credit hours from AEC 311, 312, 313, 314, 315, or 341 may be credited to the minor. AEC 399 may not be included.

### Minor in Agronomy

(**NOTE:** At the time of publication, the agronomy minor was undergoing revision. Interested students should contact the College of Agriculture for more information.)

| Minor Requirements (24 hours) | Hours |
|---|---|
| CHE 105 General College Chemistry I **and** | 3 |
| BIO 106 Principles of Plant Biology **or** equivalent | 3 |

**plus** 18 hours to be selected from the following:

Two courses selected from:

| | |
|---|---|
| AGR 360 Genetics | 3 |
| PLS 366 Fundamentals of Soil Science | 3 |
| PLS 386 Plant Production Systems | 4 |

At least four courses selected from:

| | |
|---|---|
| AGR 360 Genetics* | 3 |
| AGR 367 Soil and Water Analysis Laboratory | 3 |
| AGR 404 Integrated Weed Management | 4 |
| AGR 408 Tobacco | 3 |
| AGR 412 Grain Crops | 3 |
| AGR 468G Soil Use and Management | 3 |
| AGR 470G Fertilizers and Soil Fertility | 3 |
| AGR 502 Ecology of Economic Plants | 3 |
| AGR 510 Forage Management and Utilization | 4 |
| AGR 515 Turf Management | 3 |
| AGR 556 Seed Technology | 3 |
| AGR 566 Soil Microbiology | 3 |
| AGR 573 Soil Morphology and Classification | 3 |
| AGR 575 Soil Physics | 2 |
| PLS 366 Fundamentals of Soil Science* | 3 |
| PLS 386 Plant Production Systems* | 4 |

*If not taken as one of the required courses.

### Minor in Animal Sciences

| Minor Requirements | Hours |
|---|---|
| ASC 106 Introduction to Animal Sciences | 3 |
| ASC 300 Meat Science **or** | 5 |
| FSC 304 Animal Derived Foods **or** | 5 |
| FSC 306 Introduction to Food Processing | 4 |
| ASC/AGR 360 Genetics | 3 |
| ASC 364 Reproductive Physiology of Farm Animals | 3 |
| ASC 378 Animal Nutrition **or** | 3 |
| ASC 382 Principles of Livestock Nutrition | 3 |
| ASC Electives | 1-2 |

### Minor in Food Science

| Required Courses | Hours |
|---|---|
| FSC 535 Food Analysis **or** | 4 |
| FSC 434G Food Chemistry | 4 |
| FSC 530 Food Microbiology | 5 |
| FSC 536 Advanced Food Technology **or** | 4 |
| FSC 538 Food Fermentation and Thermal Processing | 4 |

**Elective Courses**

Two of the following:

| | |
|---|---|
| FSC 306 Introduction to Food Processing | 4 |
| AEN 340 Principles of Food Engineering | 4 |
| FSC 535 Food Analysis* **or** | 4 |
| FSC 434G Food Chemistry* | 4 |
| FSC 536 Advanced Food Technology* **or** | 4 |
| FSC 538 Food Fermentation and Thermal Processing* | 4 |

*If not taken as one of the required courses.

### Minor in Horticulture

(**NOTE:** At the time of publication, the horticulture minor was undergoing revision. Interested students should contact the College of Agriculture for more information.)

**Preminor Requirement**

| | |
|---|---|
| BIO 106 Principles of Plant Biology or equivalent | 3 |

**Minor Requirement**

| | |
|---|---|
| HOR 350 Plant Propagation | 3 |

Select 18 hours from the following:

| | |
|---|---|
| HOR 320 Woody Plants* | 4 |
| HOR 330 Annual and Perennial Flowers | 3 |
| HOR 340 Floral Design | 3 |
| HOR 352 Nursery Production* | 3 |
| HOR 375 Growth and Development of Horticultural Crops* | 3 |
| HOR 402 Fruit Crop Production | 3 |
| HOR 451 Landscape Maintenance* | 3 |
| HOR 460 Greenhouses and Controlled Environments* | 2 |
| HOR 510 Vegetable Crop Management* | 3 |
| HOR 515 Turf Management* | 3 |
| HOR 525 Greenhouse Floral Crop Management* | 3 |
| ENT 320 Horticultural Entomology | 3 |

*These courses may require prerequisites which will be the responsibility of the student to complete prior to enrolling in the course.

**Note:** Students pursuing a minor in horticulture should keep in contact with an adviser in the horticulture program. During the senior year, the student should apply for the minor by completing a minor certification form.

### Minor in Pest Management

| Prerequisite | Hours |
|---|---|
| One course from the following: | |
| AGR 408, 412, 515, 556 | |
| ASC 320, 404G, 406, 408G, 420G | |

HOR 352, 402, 510, 515, 525
PLS 386 ..... 3-4

**Minor Requirements**

ENT 300 General Entomology ..... 3
AGR 404 Integrated Weed Management ..... 4
PPA 400G Principles of Plant Pathology ..... 3

Select at least nine hours from the following:

ENT 310 Insect Pests of Field Crops ..... 3
ENT 320 Horticultural Entomology ..... 3
ENT 340 Livestock Entomology ..... 2
ENT 402 Forest Entomology ..... 3
ENT 530 Integrated Pest Management ..... 3
PPA 410 Forest Pathology ..... 3
PPA 595 Epidemiology and Control of Plant Diseases ..... 4
VS 351 Principles of Animal Hygiene and Disease Control ..... 3
AGR 470G Fertilizers and Soil Fertility ..... 3
ASC 378 Animal Nutrition ..... 3

## Minor in Rural Sociology

**Prerequisites**

Students must complete SOC 101 or GEN 102 **and** one other sociology course at the 100 or 200 level.

Any student wishing to minor in rural sociology should file an application with and be interviewed by the Director of Undergraduate Studies in sociology prior to entering the program.

**Minor Requirements**

Students must complete 15 hours in sociology, at least 12 of which must be at the 300 level or above, including one of the following six-hour blocks:

SOC 302 and SOC 303 **or**
SOC 451G and SOC 452G **or**
SOC 302 and SOC 451G

# PRE-VETERINARY MEDICINE

Students interested in becoming veterinarians may enroll in the College of Agriculture at the University of Kentucky and complete their requirements for admission to veterinary school.

Although the state of Kentucky does not have a school of veterinary medicine, it is a participating member of the Southern Regional Education Board plan, under which legal Kentucky residents may attend the Auburn University School of Veterinary Medicine. Each year 34 students are chosen from Kentucky to enter the Auburn program.

There is also a plan whereby two legal Kentucky residents may be accepted by the Tuskegee Institute School of Veterinary Medicine each year.

Under both of the above programs the students selected are exempt from the out-of-state tuition that would normally apply to a Kentucky resident. Admission is on a competitive basis with the final selection being made by a committee composed of faculty members from each of the veterinary schools.

A large number of students entering the pre-veterinary program eventually choose to obtain an undergraduate degree. It is strongly recommended that all pre-veterinary students choose a degree goal early in their college career. Thus, if not accepted for admission to veterinary school, a student will still be able to obtain a degree in four to five years.

A minimum of 74 semester hours with a grade-point average of 2.5 (on a 4.0 basis) is required prior to consideration for admission. Due to the high level of competition for admission, a student should maintain at least a 3.0 academic standing on all college work. The student must have completed all of the required courses or acceptable substitutes by June 15 of the year of application. Courses in certain advanced sciences must be taken within six years of entry. A grade of D in a required course will not be acceptable.

The application deadline each year is October 15. Tuskegee requires each student to take the Veterinary College Admission Test (VCAT).

The following curriculum is designed to meet the requirements for both Auburn and Tuskegee and may be completed in three years. However, some changes in the pre-veterinary curriculum may go into effect during the school year. *The student should work closely with his or her pre-veterinary adviser in making certain that all requirements are met for consideration for acceptance.* There are some specific alternatives to the following courses, depending on a student's background.

## Pre-Veterinary Curriculum

| | Hours |
|---|---|
| ENG 101 Writing I* | 3 |
| ENG 102 Writing II* | 3 |
| ENG 203 Business Writing | 3 |
| **OR** | |
| ENG 205 Intermediate Writing | 3 |
| ENG 261/262 Survey of English Literature I and II | 6 |
| HIS 104 A History of Europe through the Mid-Seventeenth Century | 3 |
| **OR** | |
| HIS 106 Western Culture: Science and Technology I | 3 |
| HIS 105 A History of Europe from the Mid-Seventeenth Century to the Present | 3 |
| **OR** | |
| HIS 107 Western Culture: Science and Technology II | 3 |
| MA 123 Elementary Calculus and Its Applications | 3 |
| Philosophy** | 3 |
| Humanities, Social Sciences, Fine Arts electives† | 9 |
| BIO 150/152 Principles of Biology I and II | 6 |
| BIO 151/153 Principles of Biology Laboratory I and II | 4 |
| CHE 105 General College Chemistry I | 3 |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| CHE 230 Organic Chemistry I | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| CHE 232 Organic Chemistry II | 3 |
| CHE 233 Organic Chemistry Laboratory II | 2 |
| PHY 211 General Physics | 5 |
| PHY 213 General Physics | 5 |
| ASC 378 Animal Nutrition | 3 |
| Science Electives†† | 6 |
| ASC 106 Introduction to Animal Sciences (Tuskegee only) | 3 |

*The Writing requirement for a degree from the University of Kentucky must be met. Consult adviser.

**Any one of the following courses: PHI 120, 130, 305, 320, 330, 338, 361.

†Electives must be earned in humanities, fine arts, and social sciences. Examples of acceptable electives are: art, music, theatre, literature, languages, philosophy, religion, speech, economics, geography, sociology, psychology, computer science, and PS 101.

††Science electives may include ASC 360, ASC 380, BIO 208, BIO 209, or CLA 131. Other 300- and above- level science courses may also qualify after consulting with a pre-veterinary adviser.

Further inquiries may be directed to:

**Roberta Dwyer, D.V.M.**
**Department of Veterinary Science**
**Gluck Equine Research Center**
**College of Agriculture**
**University of Kentucky**
**Lexington, KY 40546-0099**
**(606) 257-4285**

# ALLIED HEALTH PROFESSIONS

*Thomas C. Robinson, Ph.D., is Dean of the College of Allied Health Professions; Vincent Gallicchio, Ph.D., is Associate Dean for Research. William G. Pfeifle, Ed.D., is Associate Dean for Academic Affairs. Peter Berres, M.A., is Assistant Dean for Student Affairs.*

The College of Allied Health Professions is one of the five health professions colleges which, with the University Hospital, constitute the health science campus of the University of Kentucky.

The College of Allied Health Professions is composed of the Department of Clinical Sciences and the Department of Health Services.

Today allied health professionals are assuming greatly expanded and increasingly complex duties and responsibilities as essential members of the health care team. They work in a variety of delivery settings and have key responsibilities for the care and health of patients, clients, and communities. The UK College of Allied Health Professions, established in 1966, was among the first colleges to offer programs for students interested in these rapidly developing health professions. The college strives continually to revise its offerings in keeping with society's evolving expectations and health care needs.

### Accreditation

The Physician Assistant Studies program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation (CAHEA). The Clinical Laboratory Sciences program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and the Committee on Allied Health Education and Accreditation.

### Undergraduate Programs in Allied Health

The University of Kentucky grants the following degrees in the College of Allied Health:

- Bachelor of Health Sciences

Students pursuing the Bachelor of Health Sciences may select from these majors: health administration, clinical laboratory sciences, communication disorders, physical therapy, and physician assistant studies.

## ADMISSIONS PROCEDURES

### Baccalaureate Programs

Most baccalaureate programs in the College of Allied Health Professions are divided into preprofessional and professional programs. A **preprofessional program** is comprised of courses prerequisite to professional program content as well as University Studies requirements. Freshman and transfer students who have initially not completed prerequisites for entrance into a professional program complete only the first step of the application process—application to the University of Kentucky. Freshman applicants to the college will be admitted if they meet University entrance requirements, have an American College Test (ACT) composite score at or above the 50th percentile, and have a high school grade-point average of at least 2.0 on a 4.0 scale.

A **professional program** is comprised of all courses and clinical experiences required for students who have applied for and have been accepted into professional programs. Consideration for admission to the college's professional programs requires completion of prerequisite course work and completion of the professional application procedure.

Therefore, the admissions procedure for all undergraduate programs within the College of Allied Health Professions is a **two-step process**. Applicants must **first** be accepted by the University of Kentucky and second must apply for admission to a professional program approximately two semesters prior to completing prerequisites.

This selection procedure is necessary because of the limited space in the professional years of the allied health professions programs.

Requirements for the first two years (preprofessional program) may be completed at the University of Kentucky, a UK community college, or another fully accredited college or university.

**At the time of application** to the professional program, the student should have completed the **prerequisites required for application** to the program he or she plans to enter, and have plans to complete **all prerequisites before actual enrollment** in the professional program.

It is essential that complete, accurate information be furnished on the application. Individuals seeking entry into the professional programs or those admitted to the programs through falsified or misleading information may be dropped from consideration or dismissed from the programs.

Persons not enrolled at the University of Kentucky must complete applications to both the University of Kentucky **and the professional program**. Application materials are available from:

**Office of Student Affairs**
**College of Allied Health Professions**
**222 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-6394**

Deadlines and specific application instructions are listed for each program in the descriptions which follow.

### Graduate Programs

Students who want to earn advanced degrees in allied health fields must be admitted to the University of Kentucky

### APPLICATION DEADLINES FOR PROGRAMS IN ALLIED HEALTH

**Professional Program Applicants** (Students who have completed 60 hours or more at UK, UK community colleges, or other accredited colleges or universities)

Students **must** request applications from the Office of Student Affairs in the College of Allied Health. Applications for **fall admission** are available from September 1 to November 30; applications for **spring admission** are available from February 1 to April 30.

| | Fall | Spring |
|---|---|---|
| **Clinical Laboratory Sciences**<br>UK, Professional Program Applications, all supporting credentials | Feb. 15 | Sept. 15 |
| **Communication Disorders**<br>UK, Professional Program Applications, all supporting credentials | Feb. 1 | |
| **Health Administration**<br>UK, Professional Program Applications, all supporting credentials | Feb. 1 | |
| **Physical Therapy**<br>UK, Professional Program Applications, all supporting credentials | | June 1 |
| **Physician Assistant**<br>UK, Professional Program Applications, all supporting credentials | Feb. 1 | |

Graduate School. For complete information, students should refer to *The Graduate School Bulletin* or contact:

**Graduate School Admissions**
**351 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**
**(606) 257-4613**

## PROBATION AND SUSPENSION

The probation and suspension rules for professional students in the College of Allied Health Professions appear under *Academic Requirements* in the front section of this Bulletin.

## NOTICE TO ALL APPLICANTS

Some courses will require a period of training off campus in community facilities outside of Lexington.

Nonresidents of Kentucky should note that applicants to professional programs who are from other states and countries will be considered for admission by the College of Allied Health Professions providing that out-of-state enrollment does not prohibit opportunities for qualified Kentucky residents to benefit from the educational facilities provided. Because of the large number of qualified resident applicants, no more than five out-of-state residents will be accepted to the **Physical Therapy program**; no more than four out-of-state residents will be accepted to the **Physician Assistant Studies program**.

Preprofessional and professional program applicants may request information by contacting the program. Applications should be requested from the Office of Student Affairs.

### Academic Advising

Academic advising is provided within the College of Allied Health Professions. Students should report to the Office of Student Affairs to be assigned an adviser. Undeclared students interested in the health professions are encouraged to contact the Office of Student Affairs. Detailed information on each program is available by written request to the Office of Student Affairs.

## BACCALAUREATE PROGRAMS

### College Graduation Requirements

To graduate with a **Bachelor of Health Sciences** degree from the College of Allied Health Professions, a student must (1) satisfy University Studies requirements, (2) complete a minimum of 120 semester hours, including required courses in both the preprofessional and professional programs, and (3) complete the following college courses: AHP 840 and 841.

# Department of Health Services

**B.H.S. with a major in**
## HEALTH ADMINISTRATION

(**Note:** At the time of publication, the Health Administration program was undergoing revision. Interested students should check with the College of Allied Health Professions for more information.)

The College of Allied Health Professions offers the Bachelor of Health Sciences degree with a major in health administration. Graduates are employed in a variety of settings including hospitals, nursing homes, medical group practices, managed care programs, and government. Well prepared leaders who can contribute to the planning, financing, directing, coordinating, managing and evaluation of health services are needed throughout the health field. Our undergraduate program was designed to meet this challenge and is a full member of the Association of University Programs in Health Administration (AUPHA), the accepted indicator of quality for health administration programs.

The curriculum builds upon and continues general liberal arts education to provide students with the initial foundation for professional careers in health services management. For example, students enter the program with preprofessional course work which develops skills in communication, computation, critical thinking and the social, economic, political and scientific foundations of health services delivery in the United States.

The professional curriculum in the junior and senior classes builds on these foundations by developing conceptual and technical competencies in management sciences and in the unique aspects of health services organization and delivery. Upon successful completion of the first professional year, the student is placed in a health services organization for a one semester (12 credit hours) faculty supervised practicum. Post-practicum course work further integrates the theory of health services management with the learning gained through the practicum. Students may also take advantage of opportunities for professional growth through participation in student chapters of professional health administration student organizations.

Graduates of the program are employed in a variety of entry-level and mid-level management positions in health care organizations of all types. The baccalaureate in health administration is a strong liberal arts degree and provides a sound foundation for pursuit of graduate education.

### Admission to the Professional Program

Admission to the professional program is competitive and requires completion of all prerequisite course work and submission of all application materials. An overall grade-point average of 2.0 on a 4.0 scale is required for application, although the average grade-point average for admitted students is a full point higher. Application materials consist of the professional application, a biographical statement, official copies of all college transcripts, and ACT scores. Formal interviews are under development.

The Selection Committee considers overall grade-point average, grade-point average in prerequisite courses, evidence of good communication skills, evidence of academic improvement, and evidence of motivation for a career in the field. Volunteer and/or employed work experience is one indicator of motivation. Any student admitted to the University of Kentucky may become a preprofessional student in the health administration program and be assigned an adviser from the health administration program. Students desiring to enter the preprofessional program should have their records transferred to the College of Allied Health Professions by contacting Student Affairs, 222 Medical Center Annex 2.

### Professional Program Application Deadline

Deadline for UK and professional program applications and all supporting credentials:
Fall admission only—**February 1**

### Preprofessional Requirements

Students must complete a minimum of 45 hours to include:

- One semester of human biology
- One semester of microeconomics
- One semester of accounting
- One semester of introductory psychology or sociology
- HA 241 Health and Medical Care Delivery Systems
- Two semesters of English (writing course)
- One semester of calculus (MA 123 or MA 113)

### Professional Requirements (39 hours)

| | Hours |
|---|---|
| CLA 131 Medical Terminology from Greek and Latin | 3 |
| HSM 250 Introductory Epidemiology | 3 |
| HSM 260 Introduction to Health Administration | 1 |
| HSM 351 Health Services Administration | 3 |
| HSM 353 Health Administration Planning and Management Techniques | 3 |
| HSM 354 Health Law | 3 |
| HSM 355 Financial Management of Health Care Organizations | 3 |
| HSM 450 Hospital and Health Services: Interorganizational Relationships | 3 |
| HSM 452 Community and Institutional Planning for Health Services Delivery | 3 |
| HSM 842 Seminar in Health Administration: Pre-Practicum | 1 |

HSM 843 Health Administration Practicum ..... 12
HSM 844 Seminar in Health Administration: Post-Practicum ..... 1

**College Requirements**

AHP 840 Ethics in Health Practice ..... 2
AHP 841 Allied Health Practicum: The Context of Health Care Practice ..... 3

**Other Requirements**

PS 101 American Government **or** ..... 3
PS 271 Introduction to Political Behavior ..... 3
ECO 202 Principles of Economics II ..... 3
STA 291 Statistical Method **or** ..... 3
STA 370 Introduction to Statistics ..... 4
ACC 202 Principles of Accounting ..... 3
PSY 502 Introduction to Industrial Psychology **or** ..... 3
SOC 542 Human Relations in Administration of Organizations ..... 3

Other University Studies and elective courses as required to equal 120 semester hours.

For more information, contact:

**Director of Undergraduate Studies**
**Health Administration Program**
**College of Allied Health Professions**
**103 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-6361**

## B.H.S. with a major in
## PHYSICIAN ASSISTANT STUDIES

The Physician Assistant program leads to the Bachelor of Health Sciences degree. Graduates of the program are eligible to take the National Certifying Examination for Physician Assistants. The program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation.

The physician assistant functions under the supervision and responsibility of a physician and has the knowledge and competencies to 1) elicit a comprehensive health history; 2) perform a comprehensive physical examination; 3) perform simple diagnostic laboratory determinations and understand and use their values; 4) perform basic treatment procedures; and 5) make an appropriate clinical response to commonly encountered emergency care situations.

### Admission to the Professional Program

A minimum of 60 semester hours of course work including the preprofessional courses must be completed prior to enrollment in the professional program. Students admitted to the professional program are selected on a competitive basis. New students are admitted only for the fall semester of the junior year. Admission is based on a cumulative grade-point average, a key grade-point average of required science courses, the Allied Health Professions Admissions Test score, personal interview scores, and recommendations. Interviews focus on identifying the applicant's strengths, commitment to and knowledge of the profession, and prior health care exposure.

Because of the large number of highly qualified resident applicants to the Physician Assistant Studies program, no more than four out-of-state applicants will be accepted.

### Professional Program Application Deadline

Deadline for UK and professional program applications and all supporting credentials:
**February 1**

### Preprofessional Requirements

2 semesters of English (writing courses)
2 semesters of general chemistry (with lab[s])*
2 semesters of humanities courses
1 semester of general psychology*
1 semester of developmental psychology*
1 semester of biology or zoology with laboratory (not botany)*
1 semester of microbiology*
1 semester of sociology or anthropology
1 semester of anatomy**
1 semester of physiology**

*Should be completed at the time of application.

**Two separate courses in human anatomy and physiology are preferred, but a two-semester combined course will be considered.

In addition to the lower division course work requirements, students must complete University Studies requirements **prior** to enrollment.

Applicants who have received less than a "C" grade in any of the required courses are discouraged from applying until those grades have been improved.

Applicants are encouraged to include elective course work in medical terminology and ethics. Additionally, courses in mathematics, biochemistry, epidemiology, computer science, physics, logic, and genetics would be beneficial.

It is recommended that applicants have clinical exposure prior to making application. Individuals who have been employed or volunteered in providing patient care services are encouraged to apply. **Minority applicants and applicants with rural origins are especially encouraged to apply.**

### Professional Requirements

### SAMPLE CURRICULUM
### JUNIOR YEAR

**Fall Semester** **Hours**

PAS 850 Clinical Methods ..... 3
PAS 851 Introduction to the PA Profession ..... 2
PAS 853 Introduction to Health and Disease ..... 3
PAS 855 Psychosocial Factors in Primary Health Care ..... 3
PAS 872 Practical Therapeutics ..... 3
PGY 412G Principles of Human Physiology Lectures ..... 4

**Spring Semester**

AHP 840 Ethics in Health Practice ..... 2
PAS 854 Clinical Lecture Series ..... 5
PAS 856 Patient Evaluation and Management ..... 3
PAS 857 Clinical Laboratory Procedures ..... 2
PAS 880 Seminar in Physician Assistant Studies ..... 2
AHE 842 Clinical Practicum in Allied Health ..... 3
ANA 532 Systemic Human Anatomy ..... 2
CNU 800 Applied Nutrition for the Health Professions: Fundamentals of Nutrition Science in Normal Life Cycle ..... 1

### SENIOR YEAR

**Clerkships**

AHP 841 Allied Health Practicum: The Context of Health Care Practice ..... 3
PAS 860 Family Medicine Clerkship ..... 5
PAS 861 Pediatric Clerkship ..... 5
PAS 862 Obstetrics and Gynecology Clerkship ..... 5
PAS 863 Surgery Clerkship ..... 5
PAS 869 Internal Medicine Clerkship ..... 5
PAS 870 Emergency Medicine Clerkship ..... 5
PAS 871 Psychiatric Clerkship ..... 5
PAS 842 Clinical Practicum in Physician Assistant Studies ..... 4
PAS 867 Preceptorship I ..... 4
PAS 868 Preceptorship II ..... 4
PAS 880 Seminar in Physician Assistant Studies ..... 2

For further information, contact:

**Physician Assistant Studies**
**222 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-5743**

# Department of Clinical Sciences

## B.H.S. with a major in
## CLINICAL LABORATORY SCIENCES

Clinical laboratory scientists are members of the health care team who use their knowledge of basic science and their laboratory skills to aid in the prevention, diagnosis and treatment of disease. The Division of Clinical Laboratory Sciences has professional programs on the Lexington campus and at the Center for Rural Health in Hazard, Kentucky. The Clinical Laboratory Sciences program is a four-year and four-month curriculum. It is comprised of two years of preprofessional course work (freshman and sophomore); and a professional program, which is 27 months in duration (junior and senior years and two summer sessions). The Clinical Laboratory Sciences program is accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Graduates receive a Bachelor of Health Science degree and are qualified to take national certification examinations and licensure examinations in those states which so require (except California).

Two other curriculum options are: (1) two-year Clinical Laboratory Technology graduates may transfer credit toward the Clinical Laboratory Sciences degree program. This option for the two-year associate's degree applicant is also available on the Hazard and western Kentucky outreach campuses. Those interested

should consult the program director for details on application procedures. The second option (2) is a 15-month accelerated program designed to enable graduates with a bachelor's degree in a related field to become eligible for national certification. Graduates with a bachelor's degree in biology, chemistry, or related area who are interested in the 15-month program must have completed the science prerequisites (one semester of mathematics, two semesters of general chemistry with laboratory, two semesters of organic chemistry with laboratory—or one semester comprehensive course, one semester of biochemistry, one semester of bacteriology [microbiology] with laboratory, one semester of human physiology [or a combined course in anatomy and physiology], and one semester of statistics. For more information on the 15-month certification program, contact the Clinical Laboratory Sciences Program at the address below.

All curricula provide breadth in general education and a strong foundation in the basic sciences. Clinical experience is obtained in approved clinical laboratories.

The diversity of courses in the curriculum allows graduates to seek careers in human and animal health facilities, research, education, administration, industry, sales, the missionary field and the military.

### Admission

Admission to any of the options requires a completed file consisting of the professional application, official copies of **all** college transcripts, American College Test (ACT) scores, and three letters of recommendation. Candidates for admission may also be interviewed by program faculty.

Students applying for the professional program (bachelor's degree) must have completed the following at the time of application: at least **45 semester hours**, including English (3-6 hours); general chemistry with laboratory (8-9 hours); microbiology with laboratory (5 hours); and mathematics (3-6 hours). A minimum of **60 semester hours**, including all preprofessional and University requirements must be completed prior to matriculation into the professional program.

Applicants wishing to transfer credits from an associate degree must have completed the first three semesters of the associate degree at the time of application. Consultation with a faculty adviser is required to assure that all University Studies, preprofessional and professional courses are taken in an efficient sequence.

Applicants for the 15-month certification program must have completed a bachelor's degree with the prerequisites as listed above. Other application procedures are the same as those for the bachelor's degree professional program. Consultation with the program director is required to assure that all prerequisites are fulfilled.

### Histotechnology Courses

The Clinical Laboratory Sciences Program periodically offers several courses in histotechnology for students interested in working in histology laboratories. For more information, contact the Clinical Laboratory Sciences Program at the address at the end of the Clinical Laboratory Sciences section.

### Center for Rural Health Program

The Clinical Laboratory Sciences program has outreach locations in Hazard and western Kentucky for the two-year associate degree transfer option.

For more information on Rural Health locations, contact:

**Clinical Laboratory Sciences Program**
**UK Center for Rural Health**
**100 Airport Gardens Road, Suite 10**
**Hazard, KY 41701**
**(606) 439-3557**

### Professional Program Application Deadlines

Deadlines for UK and professional program applications and all supporting credentials are as follows:

Fall admission—**February 15**
Spring admission—**September 15**

Application deadline for the Center for Rural Health—consult the Associate Program Director in Hazard.

### Preprofessional Requirements (60 semester hours)

- One semester of mathematics
- Two semesters of general chemistry with laboratory
- Approved sequence in foreign language (if not completed in secondary school)
- Two semesters of humanities
- Two semesters of paired cross-disciplinary courses
- One semester of a cross-cultural course
- One semester of elementary bacteriology (microbiology) with laboratory
- One semester of human physiology (or a combined course in anatomy and physiology)
- One semester of statistical methods
- Two semesters of organic chemistry (or a one-semester comprehensive course, if not part of a sequence)
- One semester of analytical chemistry (optional)

Freshmen and sophomores are encouraged to take these recommended courses: CLS 120 or 130.

### Professional Requirements

## JUNIOR YEAR

**First Semester** **Hours**

NFS 311 Nutritional Biochemistry **or**
BCH 401G Fundamentals of Biochemistry ..... 3
CLS 835 Clinical Immunology ..... 4
CLS 801 Introduction to Laboratory Methodology* ..... 1
CLS 832 Introduction to Clinical Chemistry and Instrumentation ..... 4
CLS 854 Medical Parasitology ..... 3
CLS 860 Blood Collection ..... 1

**Second Semester**

CLS 851 Basics of Clinical Microbiology ..... 2
CLS 852 Basics of Clinical Microbiology Lab ..... 1
CLS 802 Clinical Laboratory Methods** ..... 1
CLS 833 Introduction to Clinical Hematology ..... 4
CLS 860 Blood Collection ..... 1
CLS 846 Body Fluid Analysis ..... 3
CLS 837 Computer Applications in Clinical Laboratory Sciences ..... 2
CLS 870 Clinical Laboratory Sciences Seminar ..... 1

**Intersession**

AHP 841 Allied Health Practicum: The Context of Health Care Practice ..... 3

## SENIOR YEAR

**First Semester** **Hours**

CLS 836 Laboratory Organization and Management ..... 3
CLS 858 Immunohematology Lectures ..... 3
CLS 868 Immunohematology Laboratory ..... 2
CLS 843 Clinical Hematology Lectures ..... 2
CLS 863 Clinical Hematology Laboratory ..... 3
CLS 857 Medical Mycology ..... 2

**Second Semester**

CLS 844 Clinical Chemistry Lectures ..... 3
CLS 864 Clinical Chemistry Laboratory ..... 3
CLS 855 Clinical Serology ..... 3
CLS 856 Clinical Bacteriology Lectures ..... 3
CLS 866 Clinical Bacteriology Laboratory ..... 3
HSM 538 Financial Management Techniques for the Clinical Manager*** ..... 3

**Intersession and Summer Session**

CLS 880 Clinical Practicum in Clinical Laboratory Sciences ..... 12

*Taken by first-semester juniors only.
**Taken by second-semester juniors only.
***Recommended.

For more information, contact:

**Clinical Laboratory Sciences Program**
**Medical Center Annex 2, Room 125**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-5452**

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**B.H.S. with a major in**

# COMMUNICATION DISORDERS

In keeping with the standards of the American Speech-Language-Hearing Association, the undergraduate program in communication disorders is considered to be a preprofessional degree program. In order to meet Kentucky and American Speech-Language-Hearing Association certification requirements, it is necessary to complete the master's degree. Students pursuing this program should plan on six years to complete both the Bachelor of Health Science and Master of Science programs.

### Admission to the Professional Program

The Communication Disorders program has selective admissions. Applicants must

complete a minimum of 42 credit hours at the time of application. Students are admitted to the professional program on a competitive basis. Admission is based on cumulative grade-point average and ACT or SAT scores. Applicants must submit a letter of application and three references. New students are admitted only for the fall semester of the junior year.

### University Studies Requirements

**Basic Skills**

MA 109 (or any calculus course) **or** Math ACT 26 **or** UK by-pass exam ..... 0-4
Two semesters of foreign language **or** two years of high school foreign language ..... 0-8

**Inference and Communication Skills**

Any calculus course **or** STA 200 and PHI 120 **or** 320 ..... 3-6
ENG 101 and 102 **or** ENG 105 ..... 3-6
COM 181 **or** COM 252 **or** COM 281 **or** COM 287 **or** TA 225 ..... 3

**Disciplinary Requirements**

A. Natural Science ..... 6
B. Social Science (Psychology required) ..... 6
C. Humanities ..... 6

**Cross-Disciplinary Requirements** ..... 6

**Note:** The Cross-Disciplinary courses must be taken at the University of Kentucky, or, if taken at community colleges, must be chosen from courses officially approved by the University Senate to meet this requirement.

**Cross-Cultural Requirements** ..... 3

### Related Studies Requirements

**Select one:**

LIN 211 Introduction to Linguistics ..... 3
PSY 529 Psycholinguistics ..... 3
ANT 215 Introduction to Anthropological Linguistics ..... 3
ENG 414G Introduction to Modern English Linguistics ..... 3

### Area Requirements

| | Hours |
|---|---|
| EDS 375 Introduction to Education of Exceptional Children | 3 |
| EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners | 3 |
| AHP 840 Ethics in Health Care Practice | 2 |
| AHP 841 Allied Health Practicum: The Context of Health Care Practice | 3 |
| CD 277 Introduction to Disorders of Speech and Language | 3 |
| CD 285 Applied Phonetics | 3 |
| CD 378 Anatomy and Physiology of Speech | 3 |
| CD 379 Fundamentals of Hearing | 3 |
| CD 380 Pathologies of the Auditory System | 3 |
| CD 382 Clinical Orientation in Speech-Language Pathology I | 3 |
| CD 383 Clinical Orientation in Speech-Language Pathology II | 3 |
| CD 384 Introduction to Diagnostic Procedures in Speech-Language Pathology | 3 |
| CD 587 Audiometry | 3 |
| CD 588 Disorders of Articulation | 3 |
| CD 591 Aural Rehabilitation | 3 |
| CD 514 Language Development through the Lifespan | 3 |
| CD 515 Language Assessment and Remediation | 3 |
| CD 585 Speech Science | 3 |
| EDP 202 Human Development and Learning* | 3 |
| EPE 301 Education in American Culture* | 3 |
| EDC 317 Introduction to Instructional Media* | 1 |
| CD 589 Craniofacial Anomalies** | 3 |
| CD 592 Problems and Needs of the Hearing Impaired** | 3 |

*These courses are optional, required for school certification.

**Electives.

### Elective courses

Students select 22-25 semester hours from areas such as special education, linguistics, psychology, and allied health professions to complete the minimum requirements for graduation.

### Certification and the Master's Degree

Upon completion of the undergraduate degree and with admission to the master's program, students complete the following courses for certification and the master's degree.

| Course Requirements | Hours |
|---|---|
| CD 521 Nonspeech Communication | 3 |
| CD 647 Advanced Language Disorders | 3 |
| CD 655 Advanced Diagnostic Procedures in Speech-Language Pathology | 3 |
| CD 670 Disorders of Phonation | 3 |
| CD 672 Aphasia and Related Neurogenic Disorders of Language | 3 |
| CD 673 Neurogenic Disorders of Speech | 3 |
| CD 674 Disorders of Fluency | 3 |
| CD 701 Research Methodology in Communication Disorders | 3 |
| CD 657 Clinical Practicum in Speech-Language Pathology* | 3 |
| **Total Credit Hours** | 30 |

*Six credits of approved elective courses may be substituted with approval of the Director of Graduate Studies.

Students must also complete the written comprehensive examination. Courses must be distributed—at least one-half must be at the 600-level or above, and two-thirds must be in organized courses. Three credits must come from the 500-level; 24 credits must come from the 600-level; and three credits must come from the 700-level.

Applicants wishing to meet American Speech-Language-Hearing Association certification requirements must also complete the following additional clinical practicum and clinical rotation experiences:

| | |
|---|---|
| CD 656 Clinical Practicum in Diagnostic Procedures for Speech-Language Pathology | 1 |
| CD 657 Clinical Practicum in Speech-Language Pathology | 3 |
| CD 658 Clinical Practicum in Audiology | 1 |
| CD 659 Clinical Rotation in Speech-Language Pathology | 21-36 |

## Physical Therapy Program

The Division of Physical Therapy offers the dual B.H.S./M.S. in Physical Therapy degree. This dual degree sequence of study prepares the student to enter the physical therapy profession as an appropriately credentialed individual awarded a Bachelor of Health Science and a Master of Science in Physical Therapy.

Information about other graduate offerings in physical therapy is available through the Physical Therapy Division, 4 Medical Center Annex 1, University of Kentucky, Lexington, KY 40536-0084. Or call (606) 323-5830.

### Dual Degree

The following descriptors deal with the graduate phase of this program of study (Bachelor of Health Science and Master of Science — terminal – non-thesis option):

1) have completed a minimum of 90 semester hours including specific University/Professional prerequisites and the initial two semesters of the Professional Physical Therapy curriculum;

2) complete the overall application process including references, GRE and appropriate University requirements.

The final selection of students for the Dual Degree sequence will be on a competitive admissions basis with specific information and details available from the Division of Physical Therapy. Those students pursuing the dual degree must follow the application procedures as outlined through the Division of Physical Therapy for both the undergraduate and graduate sequence.

## Degree Requirements

### Dual Degree Program

The professional sequence of study results in the award of the dual degrees, the Bachelor of Health Science and a Master of Science in Physical Therapy, which involves a continuous 29-30 months of study requiring the completion of approximately 100 semester hours. The 100 hours is divided among the following: 17 hours of basic/related science, 19 hours of clinical clerkship/internship and 64 hours of physical therapy didactic and laboratory experiences. Students must successfully complete a written comprehensive examination during the last educational term of the program. The graduate phase builds upon the strong basic science professional prerequisites as well as the first year of the program, which includes 16 hours of advanced basic science course work. Students apply for **graduate** status after completion of the first two semesters of the Professional Curriculum. The students complete a joint research project and present it in both an oral and written format during the final portion of their graduate sequence of study. Students are awarded a Bachelor of Health Science degree through the College of Allied Health Professions and a Master of Science in Physical Therapy degree from The Graduate School upon completion of the Program.

**Professional Program Application Deadline**
(Spring admissions only)

**June 1** – Deadline for UK and professional program applications, recommendations, transcript(s) and ACT scores.

**Professional Requirements**

**Tentative Course Sequence**

## FIRST YEAR

| Spring Semester | Hours |
|---|---|
| PGY 412G Principles of Human Physiology Lectures | 4 |
| ANA 811 Human Anatomy for Allied Health Professions | 5 |
| ANA 813 Developmental Anatomy for Physical Therapy Students | 1 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |
| PT 834 Introduction to Physical Therapy and Bioethics | 3 |
| **Summer Sessions** | |
| PT 815 Basic Clinic Skills | 4 |
| PT 805 Normal Functional Anatomy | 3 |
| PT 856 Therapeutic Exercise I | 2 |
| PT 866 Electromodalities | 1 |
| PT 835 Clinical Clerkship I | 1 |
| **Fall Semester** | |
| ANA 802 Neuroanatomy for Physical Therapy Students | 2 |
| PT 831 Clinical Neurophysiology | 2 |
| PT 854 Biology of Disease | 3 |
| PT 652 Pathomechanics | 3 |
| PT 645 Research and Measurement in Physical Therapy | 3 |
| PT 836 Human Growth and Development | 2 |
| ANA 801 Histology for Physical Therapy Students | 2 |

## SECOND YEAR

| Spring Semester | Hours |
|---|---|
| PT 650 Dysfunction of Peripheral Joints | 3 |
| PT 847 Medical and Physical Therapy Management of Neurological Problems | 3 |
| PT 827 Spinal Cord Rehabilitation Techniques | 2 |
| PT 654 Mechanisms of Motor Control | 3 |
| PT 877 Cardio-Respiratory Therapy | 2 |
| PT 837 Clinical Clerkship II | 3 |
| **Summer Sessions** | |
| PT 651 Dysfunction of Vertebral Joints | 3 |
| PT 821 Assessment and Management of Patients With Acute Care Disorders | 2 |
| PT 887 Introduction to Physical Therapy Management | 1 |
| PT 838 Clinical Clerkship III | 3 |
| **Fall Semester** | |
| PT 858 Advanced Assessment and Management of the Pediatric Patient | 3 |
| PT 676 Electrophysiological Testing and Therapeutics | 2 |
| PT 603 Pharmacology for Physical Therapy Students | 1 |
| PT 628 Gerontology for Physical Therapy Students | 1 |
| PT 826 Orthotics/Prosthetics | 4 |
| PT 686 Specialty Electives | 2-4 |

## THIRD YEAR

| Spring Semester | Hours |
|---|---|
| PT 839 Clinical Internship in Physical Therapy | 12 |
| **Summer Sessions** | |
| PT 888 Advanced Physical Therapy Management | 3 |
| PT 668 Research Topics in Physical Therapy | 2-3 |
| PT 770 Seminar in Physical Therapy | 3 |

For further information, contact:

**Physical Therapy Program**
**4 Medical Center Annex 1**
**University of Kentucky**
**Lexington, KY 40536-0084**
**(606) 323-5830**

### Rural Health Center

In 1992, the College of Allied Health Professions began a Physical Therapy program at the Rural Health Center in Hazard, Kentucky. This professional program starts in January of each year. The selection of the class takes place in the preceding summer. For more information and/ or an application, please contact:

**Donna Brown**
**UK Center for Rural Health**
**100 Airport Garden Road**
**Hazard, KY 41701**

## Graduate Degrees in Allied Health Professions

**Master of Science in Clinical Nutrition.** The program is designed to develop nutrition specialists, knowledgeable in the metabolic changes that occur in normal and various pathophysiological states. Opportunities for specialization are available in the areas of nutrition support, wellness and health maintenance, and management/administration. In addition, concurrent participation in an American Dietetic Association (ADA) approved dietetic internship and/or Physician Assistant Program are possible. Continued graduate study in Clinical Nutrition is possible through the multidisciplinary Ph.D. program in Nutritional Sciences.

The courses provide the student with in-depth knowledge of the role of nutrition in metabolism, the physiology of organ systems, and the pathophysiology of specific disease states. Elective course selections provide program focus while allowing maximum flexibility to meet individual needs. A minimum of 30 credit hours of course work is required for graduation.

For further information, contact:

**Clinical Nutrition**
**229 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-6103**

**Master of Science in Communication Disorders.** The Master of Science in Communication Disorders is designed for students seeking entry-level professional preparation in speech-language pathology. The degree is available for students who have completed an undergraduate major in communication disorders. Students without appropriate undergraduate preparation will be required to complete prerequisite course work. The curriculum incorporates course work and intensive clinical practicum experiences designed to prepare students to meet state licensure and national certification requirements. For further information, contact:

**Director of Graduate Studies**
**Division of Communication Disorders**
**1028 S. Broadway, Ste. 3**
**University of Kentucky**
**Lexington, KY 40504-2650**
**(606) 257-7918**

**The Martin School – Master of Health Administration.** The Master of Health Administration degree program (MHA) is designed to provide graduate level education to individuals who, after appropriate practical experience, are capable of assuming senior level managerial positions in a variety of health services providers.

The program is accredited by the Accrediting Commission on Education in Health Services Administration, and is a full member of University Programs in Health Administration. These affiliations are the recognized measures of quality in graduate health administration education.

The curriculum of the MHA program consists of an 18-hour administrative core, a 27-hour health services core, and six hours of electives that allow specialization in a specific functional area or type of health services provider. The program and courses are structured so that full-time and part-time students can successfully complete the degree on the Lexington campus. Course work requires a minimum of two academic years to complete the program.

The MHA degree is offered through the Martin School of Public Administration in cooperation with appropriate academic units in the University's Lexington campus and Medical Center. The Director of Graduate Studies for the MHA program holds a joint appointment in the Department of Health Services in the College of Allied Health Professions and in the Martin School. This multidisciplinary approach enables the MHA program to draw on highly qualified faculty in the College of Allied Health Professions, the College of Business and Economics, and the Martin School of Public Administration. For further information, contact:

**Director of Graduate Studies**
**Department of Health Services**
**College of Allied Health Professions**
**103 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY, 40536-0080**
**(606) 323-6362**

**Master of Science in Health Physics.** This program option produces specialists in the safe, efficient use of radiation and

radioactive materials. Such professionals are responsible for the protection of the health and safety of users of radiation and the general public. The health physicist draws upon knowledge and skills derived from physics, mathematics, biology, medicine, chemistry, and management. As use of radiation has become more frequent and highly regulated, employment of radiation protection specialists has greatly increased.

**Master of Science in Physical Therapy.** The Division of Physical Therapy offers the Master of Science degree to qualified graduate students that have already obtained a professional physical therapy degree. The area of emphasis in this program is the study of the musculoskeletal system. Within this area of concentration, the student may emphasize biomechanics, sports medicine, peripheral joints, spinal function, occupational analysis, electrophysiologic testing or any combination thereof. A thesis or non-thesis track is required for graduation. Graduates of the M.S. program will be prepared for advanced clinical practice in musculoskeletal therapeutics, able to conduct and report research, have experience in academic and clinical teaching and will be prepared to assume a leadership role in the profession. The intensity and depth of the course work will also prepare the student for work towards a doctoral degree if they so desire. For further information, contact:

**Director of Graduate Studies**
**Physical Therapy Division**
**UKMC Annex 1, Room 5**
**University of Kentucky**
**Lexington, KY 40536-0079**
**(606) 323-5971**

**Master of Science in Radiological Medical Physics.** This program option trains professionals involved with the application of ionizing and nonionizing radiation to the diagnosis and treatment of disease. Such individuals plan radiation treatments for cancer patients, measure output from radiation sources, calibrate and evaluate instrumentation, design radiation facilities, and control medical radiation hazards.

For further information about either of these program options, contact:

**Division of Radiation Sciences**
**130 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-6350**

## Post-Baccalaureate Study

**Clinical Pastoral Counseling** faculty members coordinate learning experiences with the programs of patient care in a variety of institutional settings to educate health and religious personnel in their developing interrelationships. Accredited clinical pastoral education, leading to eligibility for certification, is offered at basic, advanced and supervisory levels. For further information, contact:

**Division of Clinical**
**Pastoral Counseling**
**UKMC Annex 2, Room 107**
**University of Kentucky**
**Lexington, KY 40536-0080**
**(606) 323-5301**

# ARCHITECTURE

*David B. Mohney, M.Arch., is Dean of the College of Architecture; Clyde R. Carpenter, M.Arch., is Associate Dean for Administration; Stephen C. Deger, M.S. Arch.Eng., is Associate Dean for Student Affairs.*

The art of building is the art of providing space and structure for the organized accommodation of human activity. The art of architecture is the art of evoking poetic response to the built domain. Architecture is one of the most durable symbols that remains as a testament to the lives of a people, to their spirit and their aspirations, to their degree of civilization.

The objective of the College of Architecture and its curriculum is to promote the development of those qualities of professional skill, competence and social awareness which the architect must command if architecture is to enhance contemporary life and remain as an enduring and valid expression of our society.

### Accreditation

The College of Architecture is fully accredited by the National Architectural Accrediting Board.

### Undergraduate Program in Architecture

The University of Kentucky grants the following degree in the College of Architecture:

- Bachelor of Architecture

## ADMISSION

Applicants to the University of Kentucky who may be interested in architecture are encouraged to visit the campus and to discover more about the program by appointment with the Associate Dean for Student Affairs of the college.

Since 1975, enrollment in the College of Architecture has been regulated by means of a selective admissions procedure. All applicants to the college will be examined on a comparative and competitive basis.

Transfer applicants should be aware that the College of Architecture Admissions Committee reserves the right to place an accepted student in the component or components of the college curriculum which it deems most appropriate to the student's background and previous development.

Applications for admission to the College of Architecture may be obtained from:

**College of Architecture**
**112 Pence Hall**
**University of Kentucky**
**Lexington, KY 40506-0041**
**(606) 257-7623**

### Admissions Procedures

**Freshman** candidates are required to file an application with the Office of Admissions by March 1, 1996, for 1996 Fall Semester admission. Please note that this deadline is earlier than those for general admission to the University. Candidates will be admitted in order of priority on the basis of the following criteria:

1. A potential for general academic achievement as indicated by the high school grade-point average and freshman entrance examination scores.

As a rule, freshmen must meet the minimum academic standards required for all freshmen applicants for admission to the University. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

For fall admission, applicants must register for and take the American College Test (ACT) or the Scholastic Aptitude Test (SAT) on or before the December 1995 test date.

2. The probability of success in a professional program in architecture as predicted by "The Architectural School Aptitude Test."

3. Comparative measures of aptitude and motivation derived by the Admissions Committee from supplementary tests (e.g., a home project assignment and/or a controlled test taken by the candidate on the same day and at the same place as test in 2. above) and, in cases of uncertainty and circumstances permitting, personal interview.

These tests will be administered by the College of Architecture Admissions Committee in the College of Architecture, Pence Hall, on March 2, 1996, for 1996 Fall Semester applicants.

Arrangements can be made for those candidates who are unable to attend the examination on campus, for test administration under proper controls prior to March 2, 1996, at their local educational facility. Requests stating the need for a local examination and the name and address of the individual who would administer the controlled test should be made in writing to the College of Architecture Admissions Committee, 112 Pence Hall, in sufficient time to allow the necessary arrangements to be made, and to ensure that the results of the examination are received by the committee by March 2, 1996.

**APPLICATION DEADLINE FOR COLLEGE OF ARCHITECTURE**

**Freshmen and Transfer Students–**

| | |
|---|---|
| Application, ACT - | March 1 |
| Test - | March 2 |

**Transfer Students from NAAB Architecture Programs–**

| | |
|---|---|
| Application, ACT, Test/Portfolio - | April 1 |

**Transfer** candidates from educational programs other than those in architecture will be required to observe the same application deadlines and testing procedures (when applicable) as those set out above for freshmen.

Candidates will be considered in order of priority on the basis of the following criteria:

1. The indication of general academic performance as reflected by the cumulative collegiate grade-point average, and the indications of specific interests and aptitudes as reflected by grades in certain critical disciplines (i.e., art history, foreign languages, freehand drawing, history of ideas, mathematics, philosophy, social history, etc.)

As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or an average of C in all previous college work. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

2. The probability of success in a professional program in architecture as predicted by "The Architectural School Aptitude Test."

Any applicant who is successful in "The Architectural School Aptitude Test" but who has a university grade-point average of less than 2.0 will not be accepted to begin work in the College of Architecture. However, a one-year deferment of admission may be granted pending grade improvement to at least 2.0. This require-

ment may be waived by the Dean of the College of Architecture under extraordinary circumstances.

3. Other indications of their aptitude and motivation as may be available (e.g., a portfolio of work, references, experiences in building construction or related fields, etc.).

4. Comparative measures of their aptitude and motivation derived by the College Admissions Committee from supplementary tests (e.g., a home project assignment and/or a controlled test taken by the candidate on the same day and at the same place as test in 2. above) and, in certain cases of indecision, and circumstances permitting, personal interviews.

Students who have been admitted to and have completed some professional courses within the College of Architecture and have withdrawn from the university for a period of three years or more, or who have not taken professional courses within the College of Architecture but remain in the university for a period of two years or more, may not re-enter the program without the consent of the Dean of the College of Architecture, which would be given only under extraordinary circumstances.

**Transfer candidates from N.A.A.B. accredited programs in architecture** are required to file application with the Office of Admissions by April 1, 1996, for 1996 Fall Semester admission. Please note that this deadline is earlier than those for application to the University in general.

Candidates will be considered in order of priority on the basis of the following criteria:

1. The indication of general academic success and success in a professional program in architecture as reflected by the cumulative collegiate grade-point average, and indications of specific aptitude and skill development as reflected by grades in architecture or environmental design courses.

As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or a C average in all previous college work. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon the recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

Any applicant who is successful in "The Architectural School Aptitude Test" but who has a university grade-point average of less than 2.0 will not be accepted to begin work in the College of Architecture. However, a one-year deferment of admission may be granted pending grade improvement to at least 2.0. This requirement may be waived by the Dean of the College of Architecture under extraordinary circumstances.

2. The probability of success in a professional program in architecture as predicted by a review of their portfolio of work in architecture.

The portfolio should be brought or mailed, *together with return postage and mailing labels directly to*:

**College of Architecture**
**Admission Committee**
**112 Pence Hall**
**University of Kentucky**
**Lexington, KY 40506-0041**

3. A review of at least three letters of reference addressed to the Admissions Committee from referees such as previous instructors in architecture or environmental design, other teachers, architectural practitioners or related professionals for whom the candidate may have worked.

The candidate's portfolio and letters of reference should be received by the committee by April 1, 1996, for 1996 Fall Semester admission.

4. In cases of uncertainty, and circumstances permitting, personal interview.

### Scholarships

The College of Architecture awards scholarships based on merit and need to students entering the second through fifth years of the program, including travel grants for semesters abroad. Twenty-five scholarships exceeding $35,000 are awarded annually. Architecture majors from first through fifth years are eligible for all general university scholarships and financial aid. Architecture students are also employed in the library, computer lab and workshop of the college, and serve as teaching assistants.

### Advising

Advising in the College of Architecture is done formally by the two associate deans who meet with each student each semester to review progress in the program and formulate individual curricular plans. The Student Services Office maintains complete records and provides information on admission, class policies, scheduling and scholarships, and provides class registration. Informal advising is an ongoing process during the studio and seminar components of the curriculum, where the student-to-teacher ratio is typically 10-12 to 1.

## THE DEGREE OF BACHELOR OF ARCHITECTURE

A five-year program in architecture at the University of Kentucky was established in September 1960 to meet the increasing need for professionally educated architects in Kentucky and the nation.

The college is fully accredited by the National Architectural Accreditation Board. Over the years the program in architecture at the University of Kentucky has attained national recognition, both in the profession and in academia, for the quality of its students and its faculty, and for the quality of the student work produced.

The College of Architecture enriches its undergraduate program with the addition of a European workshop as an important option, offering many of the courses in the curriculum at a resident center in Europe.

To be eligible for the professional degree of Bachelor of Architecture a student must meet the following requirements:

1. Completion of University Studies requirements.
2. Completion of a minimum of 176 semester hours, exclusive of those earned in physical education and reserve officer training programs, with a cumulative standing of not less than 2.0.

### Curriculum

### YEAR ONE

| Fall Semester | Hours |
|---|---|
| ARC 860 Technics and Kinematics I | 2 |
| ARC 861 Basic Architectural Design I | 4 |
| ARC 825 Drawing Studio I | 1 |
| ARC 120 Introduction to the History and Theory of Architecture | 3 |
| MA 109 College Algebra | 3 |
| ENG 101 Writing I | 3 |

| Spring Semester | |
|---|---|
| ARC 862 Basic Architectural Design II | 4 |
| ARC 826 Drawing Studio II | 1 |
| ARC 827 Representation | 2 |
| ARC 121 History and Theory of Architecture I | 3 |
| MA 112 Trigonometry | 2 |
| ENG 102 Writing II | 3 |
| University Studies or Elective | 3 |

### YEAR TWO

| Fall Semester | Hours |
|---|---|
| ARC 222 History and Theory of Architecture II | 3 |
| ARC 863 Architectural Design Studio I: Modern Space | 6 |
| Communication requirement | 3 |
| PHY 201 General Physics | 4 |
| Elective | 2 |

| Spring Semester | |
|---|---|
| ARC 223 History and Theory of Architecture III | 3 |
| ARC 864 Architectural Design Studio II: Single and Multiple Objects | 6 |
| ARC 828 Computers and Architecture | 3 |
| PHY 203 General Physics | 4 |

## YEAR THREE

| Fall Semester | Hours |
|---|---|
| ARC 324 History and Theory of Architecture IV | 3 |
| ARC 865 Architectural Design Studio III: Context | 6 |
| ARC 829 Materials and Methods of Construction | 3 |
| ARC 830 Structural Design and Analysis I | 3 |
| ARC 834 Environmental Controls I | 3 |

| Spring Semester | |
|---|---|
| ARC 325 Theories of Urban Form | 3 |
| ARC 866 Architectural Design Studio IV: Transformation at the Large Scale | 6 |
| ARC 831 Structural Design and Analysis II | 3 |
| ARC 835 Environmental Controls II | 3 |
| MA 123 Elementary Calculus and Its Applications | 3 |

## YEAR FOUR

| Fall Semester | Hours |
|---|---|
| ARC 820 Studies in History and Theory of Architecture I: Theories | 3 |
| ARC 867 Architectural Design Studio V: Complex Program in Complex Context | 6 |
| ARC 832 Structural Design and Analysis III | 3 |
| University Studies Component **or** Elective | 6 |

| Spring Semester | |
|---|---|
| ARC 821 Studies in History and Theory of Architecture II: Urban Form | 3 |
| ARC 868 Architectural Design Studio VI: A Piece of the City | 6 |
| ARC 833 Structural Design and Analysis IV | 3 |
| ARC 836 Building Systems Integration | 3 |
| University Studies Component | 3 |

## YEAR FIVE

| Fall Semester | Hours |
|---|---|
| ARC 822 Studies in History and Theory of Architecture III: Techniques | 3 |
| University Studies Component **or** Elective | 6 |
| ARC 869 Architectural Design Studio VII: Reading the Object **and** | 6 |
| ARC 850 Professional Practice | 3 |
| **OR** | |
| ARC 899 Thesis Research* | 3 |

| Spring Semester | |
|---|---|
| ARC 850 Professional Practice | 3 |
| University Studies Component **or** Elective | 9 or 12 |
| ARC 870 Architectural Design Studio VIII: Recapitulation | 6 |
| **OR** | |
| ARC 901 Architectural Design Thesis | 6 |

*ARC 899 will be required as a preparation for the thesis. Students who enroll in ARC 899 will enroll in ARC 850 in the Spring Semester, substituting ARC 850 for an elective.

### Summer Session

Offerings may vary; typically an architectural travel program, upper level design studios, and other required courses, such as Structural Design, are offered.

# ARTS AND SCIENCES

*Richard C. Edwards is Dean of the College of Arts and Sciences; Susan M. Rimmer, Ph.D., Associate Dean for Advanced Studies; Stephen M. Hart, Ph.D., Associate Dean for Basic Studies; Cliff Swauger, M.S., Assistant Dean for Finance and Administration; Richard B. Greissman, M.A., Assistant to the Dean for Academic Administration; Adrienne B. McMahan, M.S., Assistant to the Dean for Student Services; John Pica, M.P.A., Associate Director for Student and Information Services; Dana B. Cox, B.A., Special Assistant to the Dean.*

The College of Arts and Sciences embodies the tradition of the liberal arts; knowledge is sought, developed, shared, and cherished with concern for its ultimate value as well as for its immediate use.

The liberal arts are the core disciplines of higher learning, including the natural sciences and mathematics, the social sciences, and the humanities. Study of the liberal arts opens to the student the vast scope and excitement of human intellectual and cultural achievement; it enlarges the student's vision and enriches the student's life; and it prepares the student for life-long learning, the prerequisite for continuing personal growth and fulfillment, vocational success, and a life of effective civic participation as an informed citizen.

Most basically, what an arts and sciences education teaches is the ability to think and learn; equipped with this fundamental life skill, arts and sciences graduates are well prepared not only for the next ripple of technological and cultural evolution, but for the endless waves of change that will affect their lives.

### Undergraduate Programs in Arts and Sciences

The University of Kentucky grants the following degrees in the College of Arts and Sciences:

- Bachelor of Arts
- Bachelor of Science

Students pursuing the Bachelor of Arts or the Bachelor of Science select from these majors: anthropology, biology, chemistry, classics, economics, English, foreign language and international economics, French, geography, geological sciences, German, history, Italian, Latin American studies, linguistics, mathematics, philosophy, physics, political science, psychology, Russian and East European studies, sociology, and Spanish.

## ADMISSION

Admission requirements are the same as those of the University.

## PROGRAMS AND SERVICES

### Lower Division Students

At the Summer Advising Conference students who have declared a major are assisted in planning their first schedule of studies by professional advisers from the College of Arts and Sciences. Students who are undeclared are assisted by professional advisers from the Central Advising Service. Upon returning to the campus in the fall, students have two options for continuing advisement. Students who are reasonably certain about life/career/study goals may promptly declare a major and identify with a faculty adviser in the major department. Students who have a freshman status and have declared biological sciences as a major should see an Arts and Sciences professional adviser located on the second floor of Patterson Office Tower. Students who are undecided about life/career/study goals or who need assistance in testing or confirming a tentative decision previously made may find a distinctive advantage in being an "undeclared major." Students can continue, under the guidance of a professional adviser of the Central Advising Service, to investigate their interests.

The Office of Student Services serves all students in the college. Routine questions concerning credits earned, grade-point average, changing majors, or transferring from one college to another should be addressed to the staff in 257 Patterson Office Tower, (606) 257-8712.

### Academic Advising

Academic advising is provided by selected faculty in the department of the student's major. Upon declaring a major, the student should promptly contact the department and request an adviser. It is imperative that each student file a Field of Concentration Plan Sheet with the Office of Student Services, 257 Patterson Office Tower, no later than the end of the junior year. The A&S professional advisers (declared majors) and the advisers of the Central Advising Service (undeclared students) are available for students needing authoritative information about College or University requirements.

### Dean's List

A student who completes at least **12 credits** of "letter" grades with a **3.60** or higher grade-point average in a fall or spring semester will be named to the Dean's List in the College of Arts and Sciences. CLEP, AP, special exam and Independent Study credits are excluded. The student's cumulative grade-point average is not considered; only the grade-point average for that particular semester is relative.

### Scholarships

For information on general scholarships in the College of Arts and Sciences, contact the Associate Dean for Basic Studies, 249 Patterson Office Tower, (606) 257-6689, or (606) 257-4023. Students interested in scholarships in a specific department should contact the chairperson of the individual department.

## ACADEMIC SUSPENSION AND REINSTATEMENT

The College of Arts and Sciences follows the general University rules for academic suspension and reinstatement which are outlined in the *Academic Requirements* section of this Bulletin. Students placed on academic suspension must be reinstated by the college before applying for readmission to the university. Students should arrange for reinstatement proceedings before the admissions deadline for participation in advance registration for the semester in which the student plans to return. Students who fail to request reinstatement prior to the admissions deadline will normally not be considered for reinstatement until the subsequent semester.

### Readmission After a Two-Year Absence

In accordance with the University Senate rules, which allow the dean of each college to determine which degree requirements a returning student shall follow, students should note the following: Students enrolling in the College of Arts and Sciences after an absence from the University of Kentucky system of two or more years will be expected to satisfy the university, college, and department requirements in effect at the time of readmission.

Students with extenuating circumstances may petition the dean for permission to continue under the degree requirements that were in effect for them during their previous enrollment in the UK system.

### College Policy on Learning Disabilities

The College of Arts and Sciences anticipates that virtually all of its students will

satisfy all of its requirements. However, any student who believes that he or she can show evidence — by diagnostic testing and/or psychological evaluation — that he or she has a learning disability which warrants a waiver of any specific college requirement may request such a waiver from the Dean of the College.

## THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

### Requirements for a Bachelor of Arts Degree

To receive the Bachelor of Arts degree, students must:

1. Complete the University Studies program.[1]
2. Complete the following extensions to the University Studies program:

a. In addition to the Basic Skills Foreign Language requirement, students must 1) satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence; **or** 2) pass the third semester course in one language and the second semester course in a second language, or demonstrate equivalent competency on departmentally approved placement exam.

b. In addition to completing the Natural Sciences disciplinary requirement, students must take six additional hours in disciplines in the natural sciences.†

c. In addition to completing the Social Sciences disciplinary requirement, students must take six additional hours in disciplines in the social sciences.†

d. In addition to completing the Humanities disciplinary requirement, students must take six additional hours in disciplines in the humanities. When appropriate, courses used to satisfy **b** through **d** above also can be used to satisfy Cross-disciplinary and Cross-Cultural requirements.†

3. Complete at least 120 credit hours in courses acceptable to the College of Arts and Sciences.[2]
4. Complete at least 90 credit hours in Arts and Sciences courses.[3]
5. Complete at least 39 credit hours in courses numbered at or above the 300 level.
6. Complete at least six credit hours of premajor courses in the departmental major.
7. Complete at least 42 credit hours as listed on the Field of Concentration Plan Sheet.[4]
8. Complete at least one course in disciplines from the natural sciences or social sciences that includes some laboratory or field experience. (See *College Laboratory Requirement* below.)
9. Attain an overall grade-point average of at least 2.0.
10. Attain a grade-point average of at least 2.0 in all premajor and Field of Concentration Plan Sheet courses.
11. Complete a minimum of six credit hours of free electives. Electives cannot be counted towards University Studies, Arts and Sciences, or Arts and Sciences major requirements.

†See *Policy on Additional Hours for B.A. and B.S. Within University Studies Disciplines* below.

### Requirements for a Bachelor of Science Degree

To receive the Bachelor of Science degree, students must:

1. Complete the University Studies program.[1]
2. Complete the following extensions to the University Studies program:

a. In addition to the Basic Skills Foreign Language requirement, students must 1) satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence; **or** 2) pass the third semester course in one language and the second semester course in a second language, or demonstrate equivalent competency on departmentally approved placement exam.

b. In addition to completing the Natural Sciences disciplinary requirement, students must take three additional hours in disciplines in the natural sciences.†

c. In addition to completing the Social Sciences disciplinary requirement, students must take three additional hours in disciplines in the social sciences.†

d. In addition to completing the Humanities disciplinary requirement, students must take three additional hours in disciplines in the humanities. When appropriate, courses used to satisfy **b** through **d** above also can be used to satisfy Cross-Disciplinary and Cross-Cultural requirements.†

3. Complete at least 120 credit hours in courses acceptable to the College of Arts and Sciences.[2]
4. Complete at least 90 credit hours in Arts and Sciences courses.[3]
5. Complete at least 60 credit hours in the physical, biological and/or mathematical sciences.
6. Complete at least six credit hours of premajor courses in the departmental major.
7. Complete at least 42 credit hours as listed on the Field of Concentration Plan Sheet.[4] At least 24 of these hours should be at or above the 300 level.
8. Complete at least one course in disciplines from the natural sciences or social sciences that includes some laboratory or field experience. (See *College Laboratory Requirement* below.)
9. Attain an overall grade-point average of at least 2.0.
10. Attain a grade-point average of at least 2.0 in all premajor and Field of Concentration Plan Sheet courses.
11. Complete a minimum of six credit hours of free electives. Electives cannot be counted towards University Studies, Arts and Sciences, or Arts and Sciences major requirements.

†See *Policy on Additional Hours for B.A. and B.S. Within University Studies Disciplines* below.

#### NOTES

1. See the *University Studies* section of this Bulletin for a detailed explanation of the requirements.
2. Physical education one-hour service courses are not acceptable. A maximum of 16 semester credit hours earned in military science and aerospace studies courses and 12 credit hours in experiential education and internship courses (EXP 396, departmental 399 courses) will be accepted for graduation. Courses acceptable are:

a. All courses offered by the College of Arts and Sciences.

b. Courses transferred from other institutions, judged by the dean to be equivalent or comparable to Arts and Sciences courses.

c. Courses offered by other colleges within the University of Kentucky system, or their equivalent from other institutions, which in the judgment of the dean are not primarily technical courses.

3. Courses classified as Arts and Sciences courses for purposes of the 90-hour requirement include all courses offered by the College of Arts and Sciences; all art history courses; all courses in music appreciation and the history of music; TA 101, TA 381; ARC 820, ARC 822, ARC 823; KHP 290; all economics courses except ECO 391; all undergraduate communications (COM) courses except COM 181; JAT 535 and JAT 537.
4. Faculty advisers assist students in completing the Field of Concentration Plan Sheet, which should be submitted no later than the second semester of the junior year. Copies of the form and instructions for its completion may be obtained in 257 Patterson Office Tower.

### Policy on Additional Hours for B.A. and B.S. Within University Studies Disciplines

To satisfy the Arts and Sciences degree requirement that students complete three to six additional hours in the disciplines of the natural sciences, social sciences, and humanities, students may use the following courses:

#### Natural Sciences

1. All courses offered by Arts and Sciences departments or programs within the disciplines of the natural sciences including courses with the following departmental prefixes: **AST, BIO, CHE, GLY, PHY.**

#### Social Sciences

1. All courses offered by Arts and Sciences departments or programs within the disciplines of the social sciences including courses with the following departmental prefixes: **ANT, ECO, GEO, PS, PSY, SOC, WS.**

#### Humanities

1. All courses, except as noted below, offered by Arts and Sciences departments or programs within the disciplines of the humanities including courses with the following departmental prefixes: **A-H, CLA*,**

**ENG**, FR*, GER*, HIS, LAS, LIN, MUS†, PHI††, RAE*, RS, SPI*, TA†.**

*In foreign languages, only literature, history and culture, and not language study classes may be used to satisfy the humanities requirement.

**In English, only literature and not composition courses may be used to satisfy the humanities requirement.

†In music and theatre arts, only history or appreciation and not theory or performance courses may be used to satisfy the humanities requirement.

††PHI 120 (logic) and PHI 320 (symbolic logic) may not be used to satisfy hours in the humanities.

In addition, students may use specific courses from other colleges on the main campus which have been included in the list of approved courses for the disciplinary requirements of the University Studies Program. Please refer to the course listing under IIIA., IIIB. and IIIC. of the University Studies Program in this Bulletin or the *Schedule of Classes*.

Finally, the following courses may also be used to satisfy the Arts and Sciences requirement for additional course work within the disciplines of the natural sciences, social sciences, and humanities:

**Natural Sciences**– NFS 101, ANA/PGY 206
**Humanities**– ART 100

### College Laboratory Requirement

The college requires its students to complete at least one course which includes some laboratory or field experience. In such courses the external world is observed in a controlled manner using systematic techniques and methods. A substantial portion of the course must include data collection, data analysis, and hypothetical testing under supervised conditions. The approved courses for the laboratory requirement are:

**Natural Sciences**

**Biology**— BIO 105*, 107*, 111, 151, 153, 209
**Chemistry**— CHE 106, 115
**Physics**— PHY 211, 213, 241, 242
**Geological Sciences**— GLY 101/111, 102/112

*Offered only at UK community colleges.

**Social and Behavioral Sciences**

**Anthropology**— ANT 541, 560
**Geography**— GEO 300
**Political Science**— PS 245
**Psychology**— PSY 100
**Sociology**— SOC 302, 303

When appropriate, other upper level courses may be used to satisfy this requirement by petition.

## MAJORS

A major in the College of Arts and Sciences is composed of premajor courses and a 42-hour program referred to as the "field of concentration." Specific requirements for each departmental major are listed in this Bulletin under each department.

General requirements are as follows:

1. No 100-level freshman course may be counted in the field of concentration.
2. Courses taken pass-fail may not be listed.
3. A premajor of at least 6 credits in the department is required.
4. A total of 42 credits is required in the field of concentration, including credits in the major.
5. At least 24 credits must be in courses at the 300 level or above.
6. In addition to the prerequisite, a minimum of 18 credits is required for a major in a department.
7. At least 14 credits in the field must be **outside** the major department.
8. An overall grade-point average of at least 2.0 in premajor and field of concentration courses.

The student is required to gain at least 42 hours in a field of concentration. Most of these courses must be taken during the junior and senior years. These 42 hours are subject to the approval of the student's adviser and the dean of the college.

In order to avoid working a hardship upon students who wish to secure teaching certificates, it is provided that, if necessary, six hours in education may be included in the 42 hours of the field of concentration.

Each department must specify the requirements for a major, which shall include a minimum of 18 hours of nonfreshman courses in that department, with the provision that this minimum may be set at 15 hours by a department with approval of the Arts and Sciences Faculty Council and Undergraduate Council if there are special reasons for a lower minimum. A minimum of six hours is required as a premajor for a major in a department.

Faculty advisers assist students in completing the Field of Concentration Plan Sheet, which should be submitted no later than the second semester of the junior year. Copies of the form and instructions for its completion may be obtained in 257 Patterson Office Tower.

### Topical Majors

Students who have multiple interests or interests which do not fall into departmental areas may select a topic for concentration instead of a departmental major. Topical majors offer academic flexibility and allow students to cut across departmental and college lines in constructing meaningful and imaginative programs. Courses in several departments might be selected to pursue special interests—Asian studies, for instance. Other examples might be African-American studies, pre-law, and human studies.

Each program is reviewed by faculty in the general area of study, and must finally have approval of the topical major adviser.

The specific requirements of the topical major are that the student must have a grade-point standing of 2.5, meet University and College requirements, must enroll in and complete at least 30 credit hours after formal admission, and complete the 42-hour field of concentration requirement (see preceding section). Except for electives, all of the student's work must be generically related to the topic. In addition, the student must complete in the senior year a comprehensive paper or project that serves to integrate in some fashion his or her topical field. Frequently, it is advantageous to write this paper in the context of an independent work course or a seminar, with the instructor's approval. The paper or project must be presented to the topical major adviser and have the approval of the faculty adviser.

For more information, students should contact the Topical Major Adviser in the college (251 Patterson Office Tower).

### Double Majors

A student may obtain a double major by meeting all requirements in two departments. Major work in one department can, if there is a generic relationship, serve as the outside field in the second major, and vice versa. The student must indicate his or her double major to the Office of Student Services. He or she must have an adviser in both departments and must turn in two field of concentration plan sheets. The student who completes requirements for a double major will receive only one degree, but his or her transcript will indicate the two majors.

For information on double majors involving two colleges, consult the *Academic Requirements* section of this Bulletin.

### Minors

The College of Arts and Sciences does not require minors. However, students can earn a minor in the following disciplines in the college: anthropology, biological sciences, chemistry, classical civilization, economics, English, French, geography, geology, German, Greek, history, Italian, Latin, linguistics, mathematics, microbiology, philosophy, physics, political science, psychology, Russian, sociology, and Spanish. Interdisciplinary minors are also available in African-American studies, Appalachian studies, environmental studies, and women's studies. For more information about choosing or declaring a minor, students should contact the Office of Student Services, 257 Patterson Office Tower.

### The Preparation of Teachers

Students in the College of Arts and Sciences may, by completing certain courses in the College of Education, qualify for secondary teaching certificates. For

specific information, students should consult the College of Education, 166 Taylor Education Building.

Any Arts and Sciences student intending to seek teaching certification should so indicate to his or her faculty adviser. Most departments assign such students to a special adviser. The student should also contact the Associate Dean of the College of Education. As soon as the student has determined to seek certification he or she is assigned an adviser both in the College of Education and in the major department in the College of Arts and Sciences.

Students seeking certification should be sure to familiarize themselves with the requirements of both colleges. The sooner and the more thoroughly this is done, the greater the advantage to the student.

## INFORMATION ON COURSES

### Transfer of UK Community College Courses

The College of Arts and Sciences applies toward baccalaureate degree requirements all UK community college courses with the same prefix and number designation as courses taught at the University. Usually the college will apply up to six hours of technical course work taken at a community college. Beyond these six credit hours, each course will be evaluated on an individual basis and as it applies to the student's baccalaureate degree program.

### Independent Work Courses

A junior or senior may, with the approval of his or her adviser, the instructor who would direct the work, and the dean, register for an independent work course in his or her major department. Normally, a standing of 3.0 in the major is required. In exceptional circumstances a nonmajor or topical major may be permitted to enroll in a departmental independent work course. Such a course is characterized by special assignments for study, regular conferences, reports, and usually involves preparation of a paper. The instructor in each case must file with the department evidence of the nature of the work achieved. Credit for such courses may be granted to undergraduates to an amount of not more than 12 hours.

### Experiential Education and Internship Courses

The College of Arts and Sciences accepts experiential education and internship courses (such as EXP 396, departmental 399 courses,) on a pass-fall basis only, regardless of which college is offering the courses. A total of 12 credit hours in these courses may be counted toward the 120 credit hours required for graduation. College of Arts and Sciences majors may earn a maximum of six credit hours of experiential education credit in a semester.

### ROTC Program

A maximum of 16 semester credit hours earned in Military Science and Aerospace Studies courses will be accepted for graduation with a baccalaureate degree in the College of Arts and Sciences.

### Courses in Other Colleges

The student is permitted to elect and count toward graduation courses in the other colleges of the University, not to exceed 30 hours. Hours in the other colleges gained during the junior and senior years may, if not open to freshmen, be counted as major and field requirements.

## PRELAW STUDY

There is no specified program required for entry into law school. Students are advised to obtain the bulletins of law schools in which they are interested and to familiarize themselves with the admissions standards. In general, the prelaw student should develop rigorous study habits, skill in clear and logical communication, and a broad general education. Students considering the study of law should contact the prelaw adviser in the Central Advising Service and Transfer Center. Almost all law schools require that students take the Law School Admission Test. Students should contact the Central Advising Service and Transfer Center and the Dean's Office in the College of Law for information concerning the test.

## PREMEDICAL STUDY

The College of Arts and Sciences offers work preparatory to the study of medicine in compliance with the minimum entrance requirements of the American Medical Association and the Association of American Medical Colleges. The minimum requirements for entrance to medical schools and in preparation for taking the Medical College Admissions Test (MCAT) include: one year of English composition; one year of biology with laboratory; one year of physics with laboratory; two years of chemistry, including general chemistry, qualitative analysis, quantitative analysis, and organic chemistry; and electives sufficient for junior classification. Students should be aware that most medical schools do require considerably more than these minimum requirements.

Students who complete a four-year course of study and thereby obtain a degree will have time to meet the requirements for entrance to all medical schools. Opportunity is thus afforded for a broader background in the natural sciences, social studies, and humanities, which will be of advantage both in medical school and in later life. Students may choose any major the University offers, provided the minimum requirements listed above are met.

The number of students applying annually for admission to medical colleges exceeds the number which can be admitted. Boards of admission consequently fill their quotas from those who are best prepared, as indicated by grade-point averages, MCAT scores, and other criteria.

There is no premedical major as such at UK. Students who are interested in premedical study should contact a premedical adviser in the college, 257 Patterson Office Tower.

## PREDENTAL STUDY

In 1970 the American Dental Association abolished its traditional prerequisites for admission to dental school and left it to each school to establish for itself those prerequisites which it deems necessary. The University of Kentucky College of Dentistry does not, at this time, require applicants to have taken specific prerequisite courses. Also, a specific number of undergraduate credits is no longer a requirement for admission to the college. However, applicants to the college should understand that gaining admission is a competitive process.

Both potential applicants and their advisers are cautioned that the information given here applies only to the College of Dentistry of the University of Kentucky. Specific information should be requested from each dental school in which the student has an interest.

Students who are interested in predental study should contact a predental adviser in the college, 257 Patterson Office Tower.

## PRE-OPTOMETRY STUDY

By means of contract through the Southern Regional Education Board, the Commonwealth of Kentucky will pay to the University of Indiana, the University of Alabama, or Southern College of Optometry the nonresidential differential for each academic year for those students who qualify under this program and demonstrate approved progress in the four-year curriculum which leads to the Doctor of Optometry degree. To be eligible for financial assistance, a student must be a legal resident of the Commonwealth of Kentucky as defined by the Council on Higher Education and must be admitted to one of the above-mentioned colleges of optometry.

Pre-optometry requirements include:

2 semesters of general chemistry (with laboratory)
2 semesters of English

1 or 2 semesters of mathematics
1 or 2 semesters of general biology or zoology (with laboratory)
2 semesters of general physics (with laboratory)

Science courses taken should be those designed for preprofessional students. Brief survey courses in the sciences will not prepare students for optometry school.

Additional course requirements vary among schools. All students interested in optometry should obtain college catalogs from the institutions they are considering.

Students who are interested in pre-optometry study should contact a pre-optometry adviser in the college, 257 Patterson Office Tower.

## PREPHARMACY STUDY

The equivalent of two years of liberal arts and basic sciences is required for admission to the professional program. This preprofessional training is offered in the College of Arts and Sciences.

The minimum requirements for admission to UK's College of Pharmacy are:

1 year of English (writing)
1 semester of animal biology (with laboratory)
1 semester of microbiology (with laboratory)
1 semester of mathematics (Calculus I)
1 semester of principles of economics (micro)
1 year of physics
1 semester anatomy
1 year of general chemistry (with laboratory) including qualitative analysis
1 year of organic chemistry (with laboratory)

Arts and Sciences students interested in the study of pharmacy register for classes within the College of Arts and Sciences. Students should seek advice from either the Central Advising Service (undeclared) or their major adviser (declared) or the College of Pharmacy (226 Pharmacy Building).

## AEROSPACE STUDIES (Air Force ROTC)

The Department of Aerospace Studies provides a campus education program through which qualified students can simultaneously earn an Air Force commission and a college degree. Faculty members are experienced, active duty Air Force officers with advanced degrees.

### Admission to the Program

Non-scholarship freshmen and sophomores may register for Aerospace Studies courses without incurring a military commitment.

Sophomores and other students with four semesters of school remaining in a graduate or undergraduate status may qualify to enter the two-year program, which places them directly into the Professional Officer Course (POC) after completion of field training. The applicant must complete the Air Force Officer Qualifying Test, a medical evaluation, an interview with a board of Air Force officers, and be selected by AFROTC Headquarters.

Applicants for the POC attend a four- or six-week field training session during the summer usually preceding the semester they will enter the POC. Cadets who have completed the first two years of AFROTC attend a four-week camp; those who have not attend for six weeks.

Cadets receive travel pay to and from field training and are paid for time there.

### Requirements

An academic major in aerospace studies is not offered. However, by successfully completing either the two-year or the four-year Air Force ROTC program, a qualified student may concurrently earn a commission as an active duty Air Force Second Lieutenant while completing requirements for a degree. A student may enroll in any Air Force ROTC course at the same time that registration for other undergraduate courses is accomplished.

### AFROTC Curriculum

The AFROTC curriculum consists of both academic classes and leadership laboratory or seminar classes. The General Military Course (GMC) is a two-year course normally taken during the freshman and sophomore years. The Professional Officer Course (POC) is a two-year course normally taken during the junior and senior years. Along with academic classes each semester the GMC and POC also take leadership laboratory classes.

In the GMC, there are four academic classes (AS 111, AS 112, AS 211, and AS 212). These cover two main themes—the development of air power and the contemporary Air Force in the context of the U.S. military organization. The GMC academic classes are open to any student.

In the POC, there are four academic classes (AS 331, AS 332, AS 341, and AS 342). These cover Air Force management and leadership and American defense policy. Entry into the POC is competitive and is based on Air Force Officer Qualifying Test scores, grade-point averages, and evaluation by the Professor of Aerospace Studies. Only physically qualified students in good academic standing may compete for entry into the POC.

Students enrolled as cadets in the two-year or four-year program are involved once a week for a one-credit-hour course in a cadet corps training program designed to simulate a typical Air Force organization and its associated functions. During the GMC, the courses are called leadership seminars and include AS 113, AS 114, AS 213, and AS 214. The POC leadership laboratory classes are AS 333 and AS 343. The leadership laboratories are largely cadet-planned and conducted under the concept that they provide leadership training experiences that will improve the cadets' capabilities as Air Force officers. Leadership Laboratory is open to students who are members of the Air Force Reserve Officer Training Corps or are eligible to pursue a commission as determined by the Professor of Aerospace Studies.

### Field Training

Field training is offered at Air Force bases across the country. The student receives junior officer training and leadership development with other students, and the Air Force has an opportunity to evaluate each student as a potential member of its officer corps. Field training courses include cadet orientation, survival training, junior officer training, aircraft and aircrew orientation, physical training, organizational and functional aspects of an Air Force base, career orientation, small arms familiarization, first aid, and other supplemental training. Students are paid for time in field training.

### Scholarships

Students interested in AFROTC scholarships should refer to the *Student Financial Aid, Awards, and Benefits* section of this Bulletin or call (606) 257-7115 collect. Information is current as of January 1995 and is subject to change.

## B.A. or B.S. with a major in ANTHROPOLOGY

The Department of Anthropology offers opportunities to learn about the diverse people of today's world, as well as about their biological and cultural origins. This area of study deals with ecology, society, biology, culture, and language, among other aspects of human life. In addition, anthropologists study history and evolution in both a cultural and biological framework.

Anthropology provides an excellent foundation for careers in a variety of professions and occupations, including medicine and health services, planning and community development, international relations and development, private business, government, law, journalism, museum work, and university teaching and research.

Students can major or minor in anthropology. The major is structured to provide the student with a broad overview of the major subdisciplines: cultural anthropology, physical anthropology and archaeology. It also allows sufficient flexibility for a student to concentrate on a specific area of interest.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements listed earlier, each student completes the following:

**Premajor Requirements**

Students must take both ANT 120 and ANT 121.

**Major Requirements**

Students must take a minimum of 27 hours at the 200 level or above, chosen to produce a coherent program and to include the following:

**Anthropological Theory (9 hours)**

1. ANT 510, 533
2. One of the following: ANT 430G, 525, 526, 529, 532, 538, 550

**Research Methodology (3 hours)**

ANT 490

**Regional Focus (6 hours)**

Students must take two courses according to one of the following options:

**Option 1—Regional Specialization**

This option requires two courses focusing on the same culture area. This may be fulfilled with two anthropology courses—one ethnology course and one culture history course—from the same area. Ethnology courses are ANT 221, 323, 338, 420, 428G, 431G, 534. Culture History courses include ANT 241, 242, 320, 322, 542, 555.

Alternatively, this requirement may be fulfilled by pairing an ethnology course with a course from another department which focuses on the same area. A regional course from another department will count toward the 15 credits of allied course work, rather than toward the 27 total anthropology credits.

**Option 2—Cross-Cultural Comparison**

This option requires two ethnology courses, each representing a contrasting area. Ethnology courses are ANT 221, 323, 325, 326, 327, 338, 420, 428G, 431G, 534.

**Subdisciplinary Breadth (6 hours)**

Students achieve disciplinary breadth by completing a minimum of one course in both the archaeology and physical anthropology areas. Possible choices are listed, however other courses may be substituted if approved by the undergraduate adviser.
Archaeology—ANT 240, 312, 541
Physical anthropology—ANT 232, 332, 523

**Senior Tutorial Seminar (3 hours)**

ANT 582 is a capstone seminar on contemporary issues in anthropology and is to be taken in the senior year.

**Allied Course Work**

Students must take a minimum of 15 credits at the 200 level and above in courses meaningfully related to their specific interests in anthropology.

### Minor in Anthropology

| Minor Prerequisites | Hours |
|---|---|
| ANT 120 Introduction to Physical Anthropology | 3 |
| ANT 121 Introduction to Cultural Anthropology | 3 |

**Additional Courses**

Students must complete 12 additional hours of anthropology at the 200 level or above. These must include courses from at least two of the four fields of anthropology (archaeology, ethnology, physical anthropology, and social anthropology). A minimum of six hours must be in courses at the 300 level or above, exclusive of independent study courses. Specific courses to be taken are negotiated with the Director of Undergraduate Studies upon declaring the minor.

## THOMAS HUNT MORGAN SCHOOL OF BIOLOGICAL SCIENCES

The School of Biological Sciences and the building in which it is located are named in honor of Thomas Hunt Morgan, native of Lexington, graduate of the University, and Nobel Laureate for his work in genetics.

The school offers programs for the major in biology. The faculty represents a wide range of interests including cell biology, developmental biology, ecology, evolution, genetics, microbiology, molecular biology, physiology, and systematics.

### B.A. or B.S. with a major in BIOLOGY

The major in biology is structured to provide the student with basic competency in the broad range of biological sciences as well as to permit academic specialization in one or more of the specific disciplines of modern biology. The major is designed to prepare the student for a post-baccalaureate profession in biology or for graduate study in basic and applied areas of the biological sciences.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements listed earlier, each student completes the following:

**Premajor Requirements**

| Biology: | Hours |
|---|---|
| BIO 150 Principles of Biology I | 3 |
| BIO 151 Principles of Biology Laboratory I | 2 |
| BIO 152 Principles of Biology II | 3 |
| BIO 153 Principles of Biology Laboratory II | 2 |

**Chemistry:**

| | |
|---|---|
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |

**Mathematics:**

| | |
|---|---|
| MA 123 Elementary Calculus and Its Applications | 3 |
| **or** | |
| MA 113 Calculus I | 4 |

**Major Requirements**

Students interested in academic specialization in one or more of the specific disciplines of modern biology may fulfill the requirements for an emphasis in biology (selection of a major emphasis is **not** required of any student). Besides the selection of specific major elective courses, the emphases may require specific major requirement options, and additional premajor requirements.

**Biology Core**

1. Genetics: BIO 404G
2. Cell Biology: BIO 315
3. Physiology –
   a. Microbial Physiology: BIO 476G, **or**
   b. Plant Physiology: BIO 430G, **or**
   c. Animal Physiology: BIO 350
4. Ecology: BIO 451G
5. Seminar: BIO 425
6. Electives for a total 32 hours in upper division Biology courses.

**Organic Chemistry:**

a. Organic Chemistry –

| | |
|---|---|
| CHE 230 Organic Chemistry I | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| CHE 232 Organic Chemistry II | 3 |

**or**

b. Biochemistry –

| | |
|---|---|
| CHE 236 Survey of Organic Chemistry | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| BCH 401G Fundamentals of Biochemistry | 3 |

**Physics:**

| | |
|---|---|
| PHY 211 General Physics | 5 |
| PHY 213 General Physics | 5 |

**Field of Concentration**

The degree program in biology requires a minimum of 42 semester credit hours in courses not open to freshmen. A minimum of 28 credit hours must be completed in an area related to the major area.

### Emphases

Students interested in academic specialization in one or more of the specific disciplines of modern biology may fulfill the requirements for an emphasis in biology (selection of a major emphasis is **not** required of any student). Besides the selection of specific major elective courses, the emphases may require specific major requirement options, and additional premajor requirements.

### Animal Biology Emphasis

**Major Requirements (Physiology Option)**

| | |
|---|---|
| BIO 350 Animal Physiology | 4 |

**Emphasis Requirements**

| | |
|---|---|
| BIO 570 Invertebrate Zoology | 4 |
| **and either** | |
| BIO 340 Comparative Anatomy | 5 |
| **or** BIO 555 Vertebrate Zoology | 4 |

**Emphasis Electives**

Complete the field of concentration from the following list of approved courses:

| | |
|---|---|
| BIO 340 Comparative Anatomy | 5 |
| BIO 395 Independent Study in Biology (animal biology) | 1-6 |
| BIO 508 Evolution | 3 |
| BIO 529 Developmental Biology | 3 |
| BIO 535 Comparative Neurobiology and Behavior | 3 |
| BIO 542 Histology | 5 |
| BIO 544 Embryology | 5 |
| BIO 549 Comparative Endocrinology | 3 |
| BIO 550 Comparative Physiology | 5 |
| BIO 553 Fish Biology | 4 |
| BIO 554 Mammalogy | 3 |
| BIO 555 Vertebrate Zoology | 4 |
| BIO 557 Herpetology | 4 |
| BIO 559 Ornithology | 4 |
| BIO 563 Parasitology | 4 |
| BIO 565 Limnology | 4 |

### Ecological and Evolutionary Biology Emphasis

**Premajor Math Requirement**

| | |
|---|---|
| MA 113 Calculus I | 4 |

plus **one** of the following:
MA 114 Calculus II ..... 4
MA 132 Calculus for the Life Sciences ..... 3

### Emphasis Requirements

STA 291 Statistical Method ..... 3
STA 292 Descriptive Statistics ..... 1
BIO 395 Independent Work in Biology (ecology/evolution) ..... 3
BIO 508 Evolution ..... 3

### Emphasis Electives

Complete the field of concentration from the following lists with a minimum of one course from both lists

**Systematic List:**
BIO 300 General Entomology ..... 3
BIO 351 Plant Kingdom ..... 3
BIO 552 Taxonomy of Vascular Plants ..... 4
BIO 553 Fish Biology ..... 4
BIO 554 Mammalogy ..... 3
BIO 557 Herpetology ..... 4
BIO 559 Ornithology ..... 4
BIO 563 Parasitology ..... 4
BIO 570 Invertebrate Zoology ..... 4
BIO 571 Algology ..... 4
BIO 573 Mycology ..... 4

**Topical List:**
BIO 375 Behavioral Ecology and Sociobiology ..... 3
BIO 551 Plant Autecology ..... 4
BIO 555 Vertebrate Zoology ..... 4
BIO 565 Limnology ..... 4
BIO 568 Insect Behavior ..... 3
PLS 366 Fundamentals of Soil Science ..... 3
AGR 461 Introduction to Population Genetics ..... 2
FOR 564 Forest Soils ..... 3
GLY 301 Introduction to Paleontology ..... 3
PSY 552 Animal Behavior ..... 3

## Microbiology Emphasis

### Major Requirements (Physiology Option)

BIO 476G General Microbial Physiology ..... 4

### Emphasis Requirements

BIO 208 Principles of Microbiology ..... 3
BIO 209 Introductory Microbiology Laboratory ..... 2

### Emphasis Electives

Complete the field of concentration from the following list of approved courses

BIO 395 Independent Study in Biology (microbiology) ..... 1-6
BIO 494G Immunobiology ..... 3
BIO 510 Recombinant DNA Techniques Laboratory ..... 4
BIO 514 Microbial Genetics ..... 3
BIO 563 Parasitology ..... 4
BIO 571 Algology ..... 4
BIO 573 Mycology ..... 4
BIO 580 Metabolism of Microorganisms ..... 4
BIO 582 Virology ..... 3
BIO 585 Pathogenic Microbiology ..... 3
BIO 586 Laboratory in Pathogenic Microbiology .... 2
BIO 595 Immunobiology Laboratory ..... 2
AGR 566 Soil Microbiology ..... 3
BCH 401G Fundamentals of Biochemistry ..... 3
BCH 501 General Biochemistry ..... 3
BCH 502 General Biochemistry ..... 3
FSC 530 Food Microbiology ..... 5

## Molecular Cell Biology Emphasis

### Emphasis Requirements

BIO 209 Introduction to Microbiology Laboratory ... 2

**Techniques Option:**
BIO 510 Recombinant DNA Techniques Laboratory ..... 4
**or** BIO 494G/BIO 595 Immunobiology/ Immunobiology Laboratory ..... 5
BCH 401G Fundamentals of Biochemistry ..... 3
**or** BCH 501/BCH 502 General Biochemistry ..... 6

### Emphasis Electives

Complete the field of concentration from the following list of approved courses:

BIO 395 Independent Work in Biology (molecular cell) ..... 1-6
BIO 476G General Microbial Physiology ..... 4
BIO 494G Immunobiology ..... 3
BIO 510 Recombinant DNA Techniques Laboratory ..... 4
BIO 529 Developmental Biology ..... 3
BIO 542 Histology ..... 5
BIO 580 Metabolism of Microorganisms ..... 4
BIO 582 Virology ..... 3
BIO 595 Immunobiology Laboratory ..... 2

## Molecular Virology Emphasis

### Major Requirements

BIO 425 Biology Seminar (two semesters of molecular virology seminar) ..... 2

### Emphasis Requirements

BIO 395 Independent Work in Biology (molecular virology) ..... 6
BIO 582 Virology ..... 3

**Emphasis:** At least one course or combination of courses must be selected from each of the following list of options [Technical Option and/or Biochemistry Option].

### Techniques Option

BIO 510 Recombinant DNA Techniques Laboratory ..... 4
**or** BIO 494G/BIO 595 Immunobiology/ Immunobiology Laboratory ..... 5

### Biochemistry Option

BCH 401G Fundamentals of Biochemistry ..... 3
**or** BCH 501/BCH 502 General Biochemistry ..... 6

## Organismal and Integrative Biology Emphasis

### Major Requirements (Physiology Option)

BIO 350 Animal Physiology ..... 4
**or** BIO 476G General Microbial Physiology ..... 4

### Emphasis Requirements (Anatomy Option)

BIO 340 Comparative Anatomy ..... 5
**or** BIO 542 Histology ..... 5
**or** BIO 544 Embryology ..... 5

### Emphasis Electives

Complete the field of concentration with courses from one of the following areas

#### Environmental Physiology Area

BIO 395 Independent Work in Biology (environmental physiology) ..... 1-6
BIO 544 Embryology ..... 5
BIO 550 Comparative Physiology ..... 5
BIO 553 Fish Biology ..... 5
BIO 555 Vertebrate Zoology ..... 4
BIO 557 Herpetology ..... 4
BIO 570 Invertebrate Zoology ..... 4
BIO 580 Metabolism of Microorganisms ..... 4

#### Organismal Physiology Area

BIO 395 Independent Work in Biology (regulatory physiology) ..... 1-6
BIO 529 Developmental Biology ..... 3
BIO 535 Comparative Neurobiology and Behavior ..... 3
BIO 542 Histology ..... 5
BIO 549 Comparative Endocrinology ..... 3
BIO 550 Comparative Physiology ..... 5
BIO 563 Parasitology ..... 4
BIO 568 Insect Behavior ..... 3
PSY 552 Animal Behavior ..... 3
PSY 556 Physiological Psychology ..... 3

## Plant Biology Emphasis

### Major Requirements (Physiology Option)

BIO 430G Plant Physiology ..... 3

### Emphasis Requirements

BIO 575 Plant Anatomy and Morphology ..... 4

### Taxonomy Options

BIO 552 Taxonomy of Vascular Plants ..... 4
**or** PLS 220 Introduction to Plant Identification ..... 3

### Emphasis Electives

Complete the field of concentration from the following list of approved courses:

BIO 261 Field Botany ..... 3
BIO 351 Plant Kingdom ..... 3
BIO 395 Independent Study in Biology (plant biology) ..... 1-6
BIO 431G Laboratory in Plant Physiology ..... 2
BIO 465G Economic Botany ..... 3
BIO 551 Plant Autecology ..... 4
BIO 571 Algology ..... 4
BIO 573 Mycology ..... 4
PLS 366 Fundamentals of Soil Science ..... 3

## Minor in Biological Sciences

A minimum of 21 semester hours is required for the minor in biological sciences, to be distributed as follows:

### Preminor Requirements

BIO 150 Principles of Biology I ..... 3
BIO 151 Principles of Biology Laboratory I ..... 2
BIO 152 Principles of Biology II ..... 3
BIO 153 Principles of Biology Laboratory II ..... 2

### Minor Requirements

Two courses from the following list:
BIO 404G Principles of Genetics ..... 4
BIO 315 Introduction to Cell Biology ..... 3
BIO 476G General Microbial Physiology ..... 4
**or** BIO 430G Plant Physiology ..... 3
**or** BIO 350 Animal Physiology ..... 4
BIO 451G Introductory Ecology ..... 4

### Minor Electives

Complete the 21-hour requirement with elective biology courses numbered 200 or higher.

**NOTE:** No more than three hours may be fulfilled with BIO 395 (Independent Study).

# B.A. or B.S. with a major in CHEMISTRY

The Department of Chemistry offers a program leading to the Bachelor of Science degree for students who intend to become professional chemists or do graduate work in chemistry. A Bachelor of Arts degree program is available for students who want greater flexibility in the selection of courses in other fields of science in addition to basic training in chemistry. The B.A. program is designed particularly for students planning to enter the professional health fields, to teach in secondary schools, or to work in such varied areas as techni-

cal service, patent law, or ecology. The department also offers a Master of Science and the Ph.D.

## Bachelor of Arts in Chemistry

Students must fulfill University Studies and College requirements as they complete the following program:

### Premajor Requirements

**Chemistry:** CHE 105, 107, and 115

**Mathematics:** MA 113 or MA 132; and MA 114

### Major Requirements

**Chemistry:** CHE 226, 230, 231, 232, 233, 440G, 441G, 572 (two credits)

**Physics:** PHY 211, 213

**Chemistry Major Field Options:** (21 credits). Any course numbered at or above 300 with prefix CHE, BCH, BIO, CS, CME, GLY, MA, MSE, PHR, PHY, or STA. Other courses may be approved as Major Field Options by the Academic Matters Committee of the Department of Chemistry. Students working towards teaching accreditation may count six credits in courses with numbers at or above 300 taken in the College of Education. Six credits of CHE 395 are recommended for students having a minimum 3.0 GPA in chemistry courses. A maximum of nine credits in undergraduate research or reading courses may be counted; such courses require approval of the Academic Matters Committee of the Department of Chemistry if the courses do not carry the prefix CHE.

### Certification Requirements

B.A. majors desiring American Chemical Society Certification must take CHE 442G and include MA 213, MA 214, CHE 450G, and CHE 522 in their program. An alternate physics sequence, PHY 231, 232, 241, and 242, is recommended.

## Curriculum for B.A. in Chemistry

#### Freshman Year

| First Semester | Hours |
|---|---|
| CHE 105 General College Chemistry I | 3 |
| ENG 101 Writing I | 3 |
| MA 113 Calculus I | 4 |
| University Studies (III-C) | 3 |
| **Second Semester** | |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| ENG 102 Writing II | 3 |
| MA 114 Calculus II | 4 |
| University Studies (III-C) | 3 |

#### Sophomore Year

| First Semester | Hours |
|---|---|
| CHE 230 Organic Chemistry I | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| PHY 211 General Physics | 5 |
| University Studies (III-B) | 3 |
| Humanities/Social Science | 3 |
| **Second Semester** | |
| CHE 232 Organic Chemistry II | 3 |
| CHE 233 Organic Chemistry Laboratory II | 2 |
| PHY 213 General Physics | 5 |
| University Studies (III-B) | 3 |
| University Studies (IV or V) | 3 |

#### Junior Year

| First Semester | Hours |
|---|---|
| CHE 226 Analytical Chemistry | 3 |
| CHE 440G Physical Chemistry* | 4 |
| GER 101 Basic German† | 4 |
| COM 199 Presentational Communication Skills†† | 1 |
| University Studies (IV or V) | 3 |
| **Second Semester** | |
| CHE 441G Physical Chemistry Laboratory | 2 |
| CHE 572 Seminar†† | 1 |
| GER 102 Basic German | 4 |
| University Studies (IV or V) | 3 |
| Major Field Option** | 3 |

#### Senior Year

| First Semester | Hours |
|---|---|
| CHE 395 Independent Work in Chemistry††† | 3 |
| Free Elective (A&S) | 3 |
| GER 201 Intermediate German† | 3 |
| Major Field Option** | 6 |
| **Second Semester** | |
| CHE 395 Independent Work in Chemistry†† | 3 |
| CHE 572 Seminar†† | 1 |
| Major Field Option** | 6 |
| GER 202 Intermediate German† | 3 |
| Free Elective (A&S) | 3 |

*Students desiring to take CHE 442G must also take MA 213 and MA 214 (MA 214 may be taken concurrently).

**Major field options must total at least 21 credits.

†Any other foreign language sequence satisfying the College of Arts and Sciences requirement in foreign languages may be substituted.

††COM 199 and two credits of CHE 572 satisfy the University Studies requirement for Oral Communication.

†††Six credits of CHE 395 are recommended for students having a minimum 3.0 GPA in chemistry courses. Oral and written reports are required for CHE 395 students during their final semester of registration in CHE 395. Students not taking CHE 395 must substitute six credits of other major field option.

## Bachelor of Science in Chemistry

Students must fulfill University Studies and College requirements as they complete the following program:

### Premajor Requirements

**Chemistry:** CHE 105, 107, and 115

**Mathematics:** MA 113 and 114

### Major Requirements

**Chemistry:** CHE 226, 230, 231, 232, 395 (six credits or substitute), 440G, 441G, 442G, 450G, 522, 532, 533, 572 (two credits)

**Mathematics:** MA 213, 214

**Physics:** PHY 231/232 and 241/242

**Chemistry Major Field Options:** Six credits from the following: CHE 395 (three additional credits); any CHE course with number 500 or above not required or counted elsewhere in the curriculum; BCH 401G or BCH 501; BCH 502.

### Certification Requirements

The B.S. degree is certified by the American Chemical Society.

## Curriculum for B.S. in Chemistry

#### Freshman Year

| First Semester | Hours |
|---|---|
| CHE 105 General College Chemistry I | 3 |
| ENG 101 Writing I | 3 |
| MA 113 Calculus I | 4 |
| University Studies (III-B) | 3 |
| University Studies (III-C) | 3 |
| **Second Semester** | |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| ENG 102 Writing II | 3 |
| MA 114 Calculus II | 4 |
| University Studies (III-C) | 3 |

#### Sophomore Year

| First Semester | Hours |
|---|---|
| CHE 226 Analytical Chemistry | 3 |
| CHE 230 Organic Chemistry I | 3 |
| MA 213 Calculus III | 4 |
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| **Second Semester** | |
| CHE 232 Organic Chemistry II | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| MA 214 Calculus IV | 3 |
| PHY 232 General University Physics | 4 |
| PHY 242 General University Physics Laboratory | 1 |
| University Studies (IV or V) | 3 |

#### Junior Year

| First Semester | Hours |
|---|---|
| CHE 440G Physical Chemistry | 4 |
| CHE 532 Spectrometric Identification of Organic Compounds | 2 |
| COM 199 Presentational Communication Skills** | 1 |
| GER 101 Basic German* | 4 |
| University Studies (III-B) | 3 |
| University Studies (IV or V) | 3 |
| **Second Semester** | |
| CHE 442G Physical Chemistry | 3 |
| CHE 441G Physical Chemistry Laboratory | 2 |
| CHE 533 Qualitative Organic Analysis Laboratory | 2 |
| CHE 572 Seminar** | 1 |
| GER 102 Basic German* | 4 |
| Major Field Option | 3 |

#### Senior Year

| First Semester | Hours |
|---|---|
| CHE 395 Independent Work in Chemistry† | 3 |
| GER 201 Intermediate German | 3 |
| CHE 450G Practical Inorganic Chemistry | 3 |
| CHE 522 Instrumental Analysis | 4 |
| University Studies (IV **or** V) | 3 |
| **Second Semester** | |
| CHE 395 Independent Work in Chemistry† | 3 |
| CHE 572 Seminar** | 1 |
| GER 202 Intermediate German | 3 |
| Major Field Option | 3 |
| Free Electives (A&S) | 6 |

*Any other foreign language sequence satisfying the College of Arts and Sciences Requirement in foreign languages may be substituted.

**COM 199 and two credits of CHE 572 satisfy the University Studies requirement for Oral Communication.

†Six credits of CHE 395 are recommended for students having a minimum 3.0 GPA in chemistry courses. Oral and written reports are required for CHE 395 students during their final semester of registration in CHE 395. Students not taking CHE 395 must substitute six credits of 300-level or higher courses in science, mathematics, or engineering, as approved by the Academic Matters Committee of the Department of Chemistry.

## Minor in Chemistry

| | Hours |
|---|---|
| MA 113 Calculus I **or** | 4 |
| MA 132 Calculus for the Life Sciences | 3 |
| MA 114 Calculus II | 4 |
| PHY 211/213 General Physics **or** | 10 |
| PHY 231/241 General University Physics and Laboratory **and** | 5 |
| PHY 232/242 General University Physics and Laboratory | 5 |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| CHE 226 Analytical Chemistry | 3 |
| CHE 230/231 Organic Chemistry I and Laboratory I | 5 |
| CHE 232/233 Organic Chemistry II and Laboratory II | 5 |
| CHE 440G Physical Chemistry | 4 |

## Department of Classical Languages and Literatures

### B.A. or B.S. with a major in CLASSICS

The Department of Classical Languages and Literatures offers the Bachelor of Arts and Bachelor of Science degree in Classics. Students choose from one of four tracks: Greek and Latin, Greek, Latin, or Classical Civilization. The Greek and Latin track provides superior competence in reading and interpreting both classical languages; it is the most appropriate choice for those preparing for graduate study in classics. The Greek track prepares students for seminary or for further study in such areas as ancient history, biblical literature, classical archaeology, comparative literature, and philosophy. The Latin track offers preparation for prospective teachers of Latin in the schools or for further study in such areas as ancient history, classical archaeology, comparative literature, law, and the Middle Ages and Renaissance. Classical Civilization is an interdisciplinary track designed to acquaint students with classical antiquity and the cultural foundations of the Western world, but without the intensive language study of the other three options. In this track individual courses of study are designed to help prepare students for careers in such diverse areas as archaeology, the armed forces, business, government service, law, the ministry, museum curatorship, public relations, writing, and many others.

#### Greek and Latin

**Degree Requirements**

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| CLA 151/152 Elementary Greek **or** the equivalent | 8 |
| CLA 201/202 Intermediate Latin **or** the equivalent | 6 |

**Major Requirements**

1. A minimum of 24 hours appropriately divided between Latin and Greek language courses.

2. A minimum of 18 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 18 hours must be in courses that appropriately combine with the Latin and Greek language courses to form the 42-hour Field of Concentration.

#### Greek

**Degree Requirements**

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| CLA 151/152 Elementary Greek **or** the equivalent | 8 |

**Major Requirements**

1. A minimum of 18 hours in Greek language courses.

2. A minimum of 24 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 24 hours must be in courses that appropriately combine with the Greek language courses to form the 42-hour Field of Concentration.

#### Latin

**Degree Requirements**

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| CLA 201/202 Intermediate Latin **or** the equivalent | 6 |

**Major Requirements**

1. A minimum of 18 hours in Latin language courses.

2. A minimum of 24 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 24 hours must be in courses that appropriately combine with the Latin language courses to form the 42-hour Field of Concentration.

**Teacher Certification Requirements**

Students who wish to teach Latin in Kentucky secondary schools must also meet the certification requirements outlined in the *College of Education* section of this Bulletin.

#### Classical Civilization

**Degree Requirements**

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| CLA 101/102 Elementary Latin **or** CLA 151/152 Elementary Greek **or** the equivalent | 8 |

**Major Requirements**

1. A minimum of 18 hours within the department in courses above the 100 level. Six of these hours must be in language courses.

2. A minimum of 24 hours in courses above the 100 level, at least 14 of which must be in courses outside the department. These courses will frequently be in such areas as ancient or medieval history, anthropology, archaeology, ancient or medieval art, and ancient or medieval philosophy. However, other areas are acceptable as long as the 24 hours combine appropriately with the 18 hours mentioned above to form the 42-hour Field of Concentration.

**Minor Requirements**

Students who wish to earn a minor from the Department of Classical Languages and Literatures can choose from the following options:

**Greek:** CLA 151/152 (or the equivalent) plus 12 hours in Greek language and literature courses beyond the 100 level, excluding courses in English translation.

**Latin:** CLA 201/202 (or the equivalent) plus 12 hours in Latin language and literature courses beyond the 200 level, excluding courses in English translation.

**Classical Civilization:** CLA 102 or CLA 152 (or the equivalent) plus 15 hours in the department above the 100 level. For majors in Latin or Greek, the language component of the Classical Civilization minor may not be satisfied with the language of the major but must be met with the other language.

### B.A. or B.S. with a major in ECONOMICS

The Department of Economics offers theoretical and applied courses in diverse areas including microeconomics, macroeconomics, labor, money and banking, international economic issues, public economics, and industrial organization. It provides the opportunity for the student to pursue his or her interests within the framework of a liberal arts education.

The department offers programs leading to different undergraduate degrees—a Bachelor of Science in the College of Business and Economics, a Bachelor of Arts and a Bachelor of Science with a major in economics in the College of Arts and Sciences, and a Bachelor of Arts and a Bachelor of Science with a major in foreign language and international economics. The distinctions among these degrees lie in the required supporting courses in the various programs.

**Degree Requirements**

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| ECO 201/202 Principles of Economics I and II | 6 |
| STA 291 Statistical Method | 3 |
| **and** | |
| MA 123/162 Elementary Calculus and Its Applications/Finite Mathematics and Its Applications | 6 |
| **or** | |
| MA 113 Calculus I | 4 |

| **Major Requirements** | **Hours** |
|---|---|
| Students must complete a minimum of 21 credit hours of advanced work in economics, including: | |
| ECO 391 Economic and Business Statistics | 3 |
| ECO 487G Intermediate Macroeconomic Theory | 3 |
| ECO 488G Intermediate Microeconomic Theory | 3 |
| ECO 400 Seminar in Economics (subtitle required) | 3 |

In addition, economics majors must complete COM 199 to satisfy USP requirements.

**To complete the Field of Concentration:** At least 14 hours of nonfreshman, related courses outside the department, including at least six credit hours in each of two other departments. Courses should be judged as having relevance to the total academic program developed by the student and the adviser. For example, certain courses from anthropology, behavioral sciences, computer science, history, mathematics,

philosophy, political science, psychology, sociology and statistics may be appropriate.

**Note:** The adviser for this Arts and Sciences major is a member of the College of Business and Economics faculty.

### Minor in Economics

| | Hours |
|---|---|
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| ECO 487G Intermediate Macroeconomic Theory **or** | 3 |
| ECO 488G Intermediate Microeconomic Theory | 3 |
| Three additional economics courses at the 300-level or above | 9 |

## B.A. or B.S. with a major in ENGLISH

The Department of English offers a wide variety of courses in English and American literature as well as in comparative literature, linguistics, folklore, film, creative writing, and composition. Undergraduate majors may also choose a curriculum that leads to a teaching certificate.

Both majors and nonmajors will find many courses that offer opportunities to deepen their acquaintance with their own culture and its heritage, to enlarge their understanding of the human condition, and to develop their capacity to use and appreciate their own language.

### Degree Requirements

In addition to satisfying University Studies and College requirements, each student must complete the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| ENG 221 Survey of English Literature I | 3 |
| and **two** of the following: | |
| ENG 222 Survey of English Literature II | 3 |
| ENG 251 Survey of American Literature I | 3 |
| ENG 252 Survey of American Literature II | 3 |

(Exceptions are made only by the approval of the Director of Advising.)

**Major Requirements**

**English Courses** (24 hours):

1. **Core course:**

| | |
|---|---|
| ENG 320 Introduction to Literary Study | 3 |

2. **One major author course:**

| | |
|---|---|
| ENG 421G Chaucer | 3 |
| ENG 425G Shakespeare Survey | 3 |
| ENG 426G Shakespeare Studies | 3 |
| ENG 428G Milton | 3 |

3. **One course in English Literature before 1800:**

| | |
|---|---|
| ENG 422G English Renaissance: 1500-1600 | 3 |
| ENG 423G English Renaissance: 1600-1660 | 3 |
| ENG 430G The Restoration and Early 18th Century: 1660-1730 | 3 |
| ENG 431G The Later 18th Century: 1730-1780 | 3 |
| ENG 440G The 18th Century English Novel | 3 |
| ENG 448G English Drama | 3 |
| ENG 519 Introduction to Old English | 3 |
| ENG 420G Studies in Medieval English Literature | 3 |

4. **Five courses (15 hours) as specified in one of the several departmental plans:**

English Literature
American Literature
Modern Literature
Film
Folklore
Writing
Imaginative Writing
English Education

Special Advisory (for areas of interest not covered by other plans; approval by Director of Advising is required)

Detailed descriptions of the various plans are available in the English Advising Office, 1227/1229, Patterson Office Tower. The student should consult with the English Advising Office in planning the Field of Concentration.

**Note:** With the approval of the Director of Advising, special topics or genre courses may satisfy specific requirements where content is appropriate.

**To complete the Field of Concentration:** Students must complete at least 15 hours in nonfreshman courses from related areas outside English, selected with the approval of their advisers.

### Minor in English

The minor consists of a total of 18 hours, of which at least 12 hours must be at or above the 300 level. The hours are to be distributed as follows:

1. Two of the following courses (six hours):
ENG 221 Survey of English Literature I
ENG 222 Survey of English Literature II
ENG 251 Survey of American Literature I
ENG 252 Survey of American Literature II
ENG 320 Introduction to Literary Study

2. One course in Shakespeare (three hours)

3. Three more courses (nine hours) selected from the department's offerings (excluding all 100-level courses and ENG 203, 204, 205, 261, 262).

## B.A. or B.S. with a major in FOREIGN LANGUAGES AND INTERNATIONAL ECONOMICS

The University of Kentucky now offers a joint major that combines foreign language proficiency with training in economics to prepare students for employment in enterprises doing business internationally. The program prepares students to succeed after graduation by combining high-quality classroom instruction with practical in-country learning opportunities. The program provides preparation for participation in internships and exchange programs and builds foundation for a future career in international business, or degrees in international law, an MBA in international business, or the Patterson School of International Diplomacy.

For further information and advising, contact the undergraduate adviser in the Department of Economics or in one of the language programs: French Language and Literature, 1015 Patterson Office Tower; Germanic Languages and Literatures, 1055 Patterson Office Tower; Russian and Eastern Studies, 1055 Patterson Office Tower; or Spanish and Italian Languages and Literatures, 1115 Patterson Office Tower. The University's address is:

**University of Kentucky**
**Lexington, KY 40506-0027**

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, the following criteria must be met in the International Economics component and in one foreign language component.

### International Economics Component

**Required Courses**

| | |
|---|---|
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| STA 291 Statistical Method | 3 |
| ECO 391 Economic and Business Statistics | 3 |
| ECO 465G Comparative Economic Systems **or** ECO 473G Economic Development | 3 |
| ECO 471G International Economics | 3 |
| ECO 487G Intermediate Macroeconomic Theory | 3 |
| ECO 488G Intermediate Microeconomic Theory | 3 |

**plus** one three-hour economics elective for a total of 27 credit hours.

### Foreign Languages Component

Students fulfill the curricula in one of the following foreign language components:

**French**

| | |
|---|---|
| FR 203 Elementary French Conversation and Composition | 2 |
| FR 306 Intermediate French Composition | 3 |
| FR 307 French for Business and Economics | 3 |

**plus** an additional 14 hours to be selected from among the following courses for a total of 22 hours:

| | |
|---|---|
| FR 300 Oral Practice in French (subtitle required)* | 1-3 |
| FR 304 Introduction to French Literature I | 3 |
| FR 305 Introduction to French Literature II | 3 |
| FR 310 French Phonetics | 3 |
| FR 312 Intermediate French Conversation | 3 |
| FR 375 Study in France or Quebec | 4 |
| FR 406 Advanced French Grammar and Composition | 3 |
| FR 412 Advanced French Conversation | 3 |
| FR 470 Studies in French Literature (subtitle required)* | 3-9 |
| FR 507 Interpretation and Style | 3 |
| FR 550 France Today | 3 |

*May be repeated under different subtitles.

When appropriate, one or more of the following courses may be included: FR 200, 204, 500, 501, 502, 503, 504.

**German**

| | |
|---|---|
| GER 205 Reading and Writing Practice | 2 |
| GER 206 Oral Practice | 2 |
| GER 307 Intermediate German Composition and Conversation I | 3 |
| GER 310 German for International Business and Professions | 3 |

**plus** an additional 12 hours to be selected from among the following courses for a total of 22 hours:

| | |
|---|---|
| GER 308 Intermediate German Composition and Conversation II | 3 |
| GER 311 Introduction to German Literature: Themes | 3 |
| GER 312 Introduction to German Literature: Popular Forms | 3 |
| GER 315 Masterpieces of German Literature I | 3 |
| GER 316 Masterpieces of German Literature II | 3 |
| GER 317 History of German Culture | 3 |
| GER 319 Contemporary German Literature and Culture | 3 |

GER 361 German Cinema ..... 3
GER 415G Major German Authors ..... 3
GER 416G Genres of German Literature ..... 3
GER 420G Special Studies in German Literary and Cultural History (subtitle required) ..... 3
GER 507 Advanced German Composition and Conversation ..... 3

### Russian

RAE 280 Russian and Soviet Culture of the 20th Century ..... 3
RAE 303/304 Russian Pronunciation and Conversation ..... 6
RAE 380 Survey of Nineteenth-Century Russian Literature (in English) **or**
RAE 390 Modern Russian Literature (in English) .. 3

**plus** an additional 9 hours to be selected from among the following courses for a total of 21 hours:

HIS 285 History of Russia to 1825 ..... 3
HIS 286 History of Russia Since 1825 ..... 3
HIS 534 Russia in the 20th Century I ..... 3
HIS 535 Russia in the 20th Century II ..... 3
HIS 538 Marxism: The History of Socialism and Communism ..... 3
PS 429G Government and Politics in Russia and the Post-Soviet States ..... 3
PS 539 The Foreign Policy of the Soviet Union ..... 3
RAE 401 Seminar in Russian and East European Studies I ..... 3
RAE 402 Seminar in Russian and East European Studies II ..... 3
RAE 403 Seminar in Russian and East European Studies III ..... 3
RAE 404 Seminar in Russian and East European Studies IV ..... 3
RAE 410 Structure and Stylistics of Russian ..... 3
RAE 411 Structure and Stylistics of Russian ..... 3
RAE 462G Advanced Reading in the Sciences and Technology (in Russian) ..... 3

### Spanish

SPI 210 Spanish Composition ..... 3
SPI 211 Spanish Conversation ..... 3
SPI 302 Business and Technical Spanish ..... 3

**plus** an additional 13 hours to be selected from among the following courses for a total of 22 hours:

SPI 310 Stylistic Studies in Spanish ..... 3
SPI 311 Advanced Spanish Conversation* ..... 1-3
SPI 312 Civilization of Spain ..... 3
SPI 314 Civilization of Spanish America ..... 3
SPI 320 Literature, Life and Thought of Spain ..... 3
SPI 322 Literature, Life and Thought of Spanish America ..... 3
SPI 397 Independent Work in Spanish ..... 3
SPI 399 Field Based/Community Based Education ..... 3-6
SPI 411 Advanced Spanish Language ..... 3
SPI 501 Spanish Phonetics, Pronunciation and Phonemics ..... 3
SPI 504 Advanced Spanish Grammar and Composition ..... 3
SPI 513 Modern Spanish Culture ..... 3
SPI 514 Studies in Spanish American Culture ..... 3

*May be repeated.

## Department of French Language and Literature

### B.A. or B.S. with a major in FRENCH

As a branch of the liberal arts curriculum, the Department of French Language and Literature has as one of its fundamental aims to broaden and deepen the student's acquaintance with the French-speaking world through the medium of its language and literature.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

**Requirement One**

FR 203 Elementary French Conversation and Composition ..... 2
FR 304 Introduction to French Literature I ..... 3
FR 305 Introduction to French Literature II ..... 3

**Requirement Two**

A minimum of six credit hours in a second foreign language.

**To Complete the Field of Concentration:** Students must complete at least 14 credit hours of nonfreshman courses outside the department clearly related to the major in French selected with the help of the department academic adviser from the following areas: anthropology, architecture, art history, economics, English, German, Greek, geography, history, Italian, Latin, linguistics, music history, philosophy, political science, religious studies, Russian and Eastern Studies, sociology, Spanish, theatre, or other disciplines approved by the Director of Undergraduate Studies in French.

**Major Requirements** **Hours**

**Options I and II**

FR 306 Intermediate French Composition ..... 3
FR 412 Advanced French Conversation ..... 3
FR 470G Studies in French Literature (subtitle required) ..... 3

**Option I (Language Oriented)**

FR 310 French Phonetics ..... 3
FR 406 Advanced French Grammar and Composition ..... 3
One additional French course at the 300, 400, or 500 level (excluding FR 300, FR 553, and courses in translation) ..... 3

**Option II (Literature Oriented)**

Three French literature courses at the 400 or 500 level ..... 9

**Option III (Topical Major in French Studies)**

Individually constructed program for special needs or interests; contact Director of Undergraduate Studies in French.

**To complete the Field of Concentration:** Students must complete at least 14 credit hours of nonfreshman courses outside the department, selected with the help of the department academic adviser from courses clearly related to the major.

### Teacher Certification Requirements

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

### Minor in French

The minor in French consists of a minimum of 18 hours in French language and literature courses beyond FR 202 and excluding FR 553 and literature courses in translation.

FR 203 Elementary French Conversation and Composition ..... 2
FR 204 Practice in Reading French ..... 2
**or**
FR 304 Introduction to French Literature I ..... 3
**or**
FR 305 Introduction to French Literature II ..... 3
FR 306 Intermediate French Composition ..... 3

Four or more courses at the 300, 400, or 500 level for a total of at least 12 hours (excluding FR 553 and courses in translation).

### B.A. or B.S. with a major in GEOGRAPHY

Geography analyzes and explains the location of and interrelationships between human and physical features of the earth's surface and atmosphere. Geographers are also interested in how and why features and their locations change over time. Geography is, therefore, both a social and natural science and because its subject matter is people and their environments, it serves as a bridge between the physical and cultural worlds.

Geography is useful for those wishing to enter cartographic and technical positions, teaching, urban and regional planning, location analysis, marketing, trade and transportation analysis, economic and environmental development, private business, government administration, and international affairs.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student must complete the departmental requirements in geography. Students seeking a degree in geography can pursue any one of four program concentrations which best prepares them for individual career goals. The concentrations are: 1) geographic techniques, 2) human geography, 3) international area studies, and 4) general geography. The premajor requirements are the same for each concentration.

**Premajor Requirements** **Hours**

GEO 130 Physical Geography ..... 3
GEO 152 Regional Geography of the World ..... 3
GEO 172 Human Geography ..... 3

**Major Requirements**

GEO 300 Geographic Research and Field Techniques ..... 4
GEO 305 Elements of Cartography ..... 3
GEO 310 Quantitative Techniques in Geography .. 3
Additionally, students must have 12 hours from anthropology, economics, political science, psychology, or sociology.

### Concentrations

#### Geographic Techniques Concentration

**Core courses** (minimum of 9 hours)

GEO 405G Cartographic Production and Design ..... 3
GEO 409G Introduction to Geographic Information Systems ..... 3
GEO 415 Map Interpretation ..... 3
GEO 505 Practicum in Cartography ..... 3
GEO 506 Introduction to Computer Cartography ... 3
GEO 507 Remote Sensing in Geography ..... 3
GEO 508 Geographic Interpretation of Aerial Photography ..... 3

GEO 509 Applications of Geographic Information Systems ..... 3

**Additional courses** (minimum of 9 hours)
GEO 285 Introduction to Planning ..... 3
GEO 355 Economic Geography ..... 3
GEO 360 Urban Geography ..... 3
GEO 420G Urban and Regional Planning ..... 3
GEO 545 Transportation Geography ..... 3
GEO 550 Geography of Energy and Natural Resources ..... 3
GEO 560 Independent Work in Geography* ..... 3
GEO 565 Topics in Geography* ..... 3

**Related Areas** (14-21 hours): Must include one course in mathematics or computer science or statistics. STA 291 or STA 370 is highly recommended. Selected examples include the following: GLY 513, CE 511, JAT 487, MA 322, and LIS 530.

### Human Geography Concentration

**Core courses** (minimum of 9 hours)
GEO 355 Economic Geography ..... 3
GEO 360 Urban Geography ..... 3
GEO 475G Medical Geography ..... 3
GEO 485G Social Geography ..... 3
GEO 490G American Landscapes ..... 3
GEO 544 Population Geography ..... 3

**Additional courses** (minimum of 9 hours)
GEO 256 Behavior in Space and Time ..... 3
GEO 285 Introduction to Planning ..... 3
GEO 420G Urban and Regional Planning ..... 3
GEO 506 Introduction to Computer Cartography ... 3
GEO 542 Political Geography ..... 3
GEO 545 Transportation Geography ..... 3
GEO 546 Spatial Development and Policy ..... 3
GEO 550 Geography of Energy and Natural Resources ..... 3
GEO 560 Independent Work in Geography* ..... 3
GEO 565 Topics in Geography* ..... 3

**Related Areas** (14-21 hours): Courses in economics, philosophy, political science, sociology, statistics, and other areas with adviser's consent.

### International Area Studies Concentration

**Core Courses** (minimum of 9 hours)
GEO 222 Cities of the World ..... 3
GEO 260 Third World Development ..... 3
GEO 320 Geography of the United States and Canada ..... 3
GEO 355 Economic Geography ..... 3
GEO 542 Political Geography ..... 3
GEO 544 Population Geography ..... 3
GEO 550 Geography of Energy and Natural Resources ..... 3

**Additional courses** (minimum of 9 hours)
GEO 324 Geography of Central and South America ..... 3
GEO 326 Geography of Europe ..... 3
GEO 329 Geography of the Soviet Union ..... 3
GEO 330 Geography of South Asia ..... 3
GEO 332 Geography of Southeast Asia ..... 3
GEO 336 Geography of Sub-Saharan Africa ..... 3
GEO 560 Independent Work in Geography* ..... 3
GEO 565 Topics in Geography* ..... 3

**Related Areas** (14-21 hours): Courses in anthropology, economics, history, sociology, statistics, political science, and other areas with adviser's consent.

*Upon adviser's consent.

### General Geography Concentration

The purpose of this concentration is to design a program that specifically addresses student interests not served by the other concentrations. An example is environmental studies.

A minimum of 18 hours of upper division courses in regional and topical geography. Courses to be selected with adviser's consent.

**Related Areas** (14-21 hours): Courses in anthropology, economics, English, geology, history, sociology, political science, and other areas with adviser's consent.

### Minor in Geography

The minor in geography requires a minimum of 18 hours to be selected from the following:

Six hours from: GEO 130, 210, 241, 251
Three hours from: GEO 172, 355, 360
Six hours from: GEO 285, 305, 310, 405G, 506, 507, 508
Three hours in any regional or topical course.

## Department of Geological Sciences

### B.A. or B.S. with a major in GEOLOGY

The geological sciences encompass a variety of types of studies of the Earth, including considerations of composition, structure, prehistoric life, internal and surfical processes, and geological history. These studies have applications in the discovery and use of mineral resources, fuels, and water; in protection of the environment; and in planning for natural limitations (earthquakes, landslides, resources, etc.) on societal development. Students undertake the study of geological sciences in the classroom, laboratory, and field.

Students in geological sciences earn the Bachelor of Arts or Bachelor of Science degree. Each student chooses an area of emphasis from among geology, geophysics, environmental geoscience, or hydrogeology.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

#### Geological Sciences with Geology Emphasis

| Premajor Requirements | Hours |
|---|---|
| GLY 101 Physical Geology | 3 |
| GLY 111 Laboratory for Physical Geology | 1 |
| GLY 102 Historical Geology | 3 |
| GLY 112 Laboratory for Historical Geology | 1 |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| MA 113/114 Calculus I and II | 8 |

| Core Courses | Hours |
|---|---|
| GLY 225 Field Methods in Geology | 3 |
| GLY 260 Mineralogy | 4 |
| GLY 401G Invertebrate Paleontology and Evolution | 3 |
| GLY 420G Structural Geology | 4 |
| GLY 423 Field Work in Regional Geology | 6 |
| GLY 461 Igneous and Metamorphic Petrology | 4 |
| GLY 470 Senior Seminar (repeated once) | 2 |
| GLY 552 Sedimentary Petrology | 3 |
| GLY 555 Stratigraphy | 3 |
| GLY 575 Geodynamics | 3 |
| Two additional GLY courses at 200 or higher level | 6 |

**Related Fields**
STA 291 Statistical Method **or** ..... 3
STA 370 Introduction to Statistics ..... 4
CS 221 First Course in Computer Science for Engineers ..... 2
A 200-level two-course sequence in physics .... 8-10
If necessary to meet the 14-hour requirement, one additional course, to be chosen with the consent of the adviser ..... 1

#### Geological Sciences with Geophysics Emphasis

| Premajor Requirements | Hours |
|---|---|
| GLY 101 Physical Geology | 3 |
| GLY 111 Laboratory for Physical Geology | 1 |
| GLY 102 Historical Geology | 3 |
| GLY 112 Laboratory for Historical Geology | 1 |
| CHE 105/107 General College Chemistry I and II | 6 |
| MA 113/114 Calculus I and II | 8 |
| CS 221 First Course in Computer Science for Engineers | 2 |

**Core Courses**
GLY 225 Field Methods in Geology ..... 3
GLY 260 Mineralogy ..... 4
GLY 420G Structural Geology ..... 4
GLY 423 Field Work in Regional Geology (six weeks in summer) ..... 6
GLY 461 Igneous and Metamorphic Petrology ..... 4
GLY 470 Senior Seminar (repeated once) ..... 2
GLY 552 Sedimentary Petrology ..... 3
GLY 571 Application of Potential Methods in Applied Geophysics ..... 3
GLY 572 Exploration Seismology ..... 3
GLY 575 Geodynamics ..... 3

**Related Fields**
PHY 231/241 and PHY 232/242 General University Physics/Laboratory ..... 10
MA 213/214 Calculus III and IV ..... 7
MA 322 Matrix Algebra and Its Applications ..... 3
Additional courses in physics or mathematics with the consent of adviser ..... 3-6

#### Geological Sciences with Environmental Geoscience Emphasis

| Premajor Requirements | Hours |
|---|---|
| GLY 101 Physical Geology | 3 |
| GLY 111 Laboratory for Physical Geology | 1 |
| GLY 102 Historical Geology | 3 |
| GLY 112 Laboratory for Historical Geology | 1 |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| MA 113/114 Calculus I and II | 8 |
| BIO 150 Principles of Biology I | 3 |
| BIO 152 Principles of Biology II | 3 |

| Core Courses | Hours |
|---|---|
| GLY 225 Field Methods in Geology | 3 |
| GLY 242 Endangered Planet: An Introduction to Environmental Geology | 3 |
| GLY 260 Mineralogy | 4 |
| GLY 420G Structural Geology | 4 |
| GLY 552 Sedimentary Petrology | 3 |
| GLY 461 Igneous and Metamorphic Petrology | 4 |
| GLY 470 Senior Seminar (repeated once) | 2 |
| GLY 530 Low Temperature Geochemistry | 3 |
| GLY 585 Hydrogeology | 3 |
| Two elective GLY courses at 200 or higher level, including field geology requirement to be met by (1) | |

GLY 423, or by (2) research/work experience (GLY 395, minimum three credits) ..... 6

**Related Fields**

STA 291 Statistical Method **or** ..... 3
STA 370 Introduction to Statistics ..... 4
CS 221 First Course in Computer Science for Engineers ..... 2
BIO 451G Introductory Ecology ..... 4
PLS 366 Fundamentals of Soil Science ..... 3
A 200-level two-course sequence in physics .... 8-10

### Geological Sciences with Hydrogeology Emphasis

| **Premajor Requirements** | **Hours** |
|---|---|
| GLY 101 Physical Geology | 3 |
| GLY 111 Laboratory for Physical Geology | 1 |
| GLY 102 Historical Geology | 3 |
| GLY 112 Laboratory for Historical Geology | 1 |
| CHE 105/107 General College Chemistry I and II | 6 |
| CHE 115 General Chemistry Laboratory | 3 |
| MA 113/114 Calculus I and II | 8 |

| **Core Courses** | **Hours** |
|---|---|
| GLY 225 Field Methods in Geology | 3 |
| GLY 242 Endangered Planet: An Introduction to Environmental Geology | 3 |
| GLY 260 Mineralogy | 4 |
| GLY 420G Structural Geology | 4 |
| GLY 461 Igneous and Metamorphic Petrology | 4 |
| GLY 470 Senior Seminar (repeated once) | 2 |
| GLY 530 Low Temperature Geochemistry | 3 |
| GLY 552 Sedimentary Petrology | 3 |
| GLY 579 Groundwater Geophysics | 3 |
| GLY 585 Hydrogeology | 3 |
| Two elective GLY courses at 200 or higher level, including field geology requirement to be met by (1) GLY 423, or by (2) research/work experience (GLY 395, minimum three credits) | 6 |

| **Related Fields** | **Hours** |
|---|---|
| MA 213/214 Calculus III and IV | 7 |
| CS 221 First Course in Computer Science for Engineers | 2 |
| A 200-level two-course sequence in physics (PHY 231/232 preferred) | 8-10 |
| STA 291 Statistical Method **or** | 3 |
| STA 370 Introduction to Statistics | 4 |
| Two courses chosen from the following: | |
| CHE 230 Organic Chemistry I | 3 |
| CHE 444G Physical Chemistry | 4 |
| CE 341 Fluid Mechanics I | 3 |
| CE 461G Hydrology | 3 |

### Minor in Geology

| | **Hours** |
|---|---|
| GLY 101 Physical Geology **and** GLY 111 Laboratory for Physical Geology | 4 |
| **or** | |
| GLY 240 Elementary Geology for Engineers | 3 |
| GLY 102 Historical Geology **and** GLY 112 Laboratory for Historical Geology | 4 |
| GLY 225 Field Methods in Geology | 3 |
| GLY 260 Mineralogy | 4 |
| **Plus** two additional courses | 6 |

## Department of Germanic Languages and Literatures

### B.A. or B.S. with a major in GERMAN

The primary aims of the Department of Germanic Languages and Literatures are to help students develop their German language skills and gain an understanding of the literature and culture of the German-speaking countries. Students majoring in German earn the Bachelor of Arts or Bachelor of Science degree.

#### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| GER 101/102 Basic German | 8 |
| GER 201/202 Intermediate German | 6 |
| GER 205 Reading and Writing Practice | 2 |
| GER 206 Oral Practice | 2 |

| **Major Requirements** | **Hours** |
|---|---|
| GER 307/308 Intermediate German Composition and Conversation I and II | 6 |
| GER 311 Introduction to German Literature: Themes | 3 |
| GER 312 Introduction to German Literature: Popular Forms | 3 |
| At least 12 hours selected from: | |
| GER 310 German for International Business and Professions | 3 |
| GER 315 Masterpieces of German Literature I | 3 |
| GER 316 Masterpieces of German Literature II | 3 |
| GER 317 History of German Culture | 3 |
| GER 319 Contemporary German Literature and Culture | 3 |
| GER 361 German Cinema | 3 |
| GER 415G Major German Authors* | 3-6 |
| GER 416G Genres of German Literature* | 3-6 |
| GER 420G Special Studies in German Literary and Cultural History* | 3-6 |
| GER 507 Advanced German Composition and Conversation | 3 |

Upon consultation with the adviser, certain 500-level courses may be substituted for two of the above.

*May be repeated once.

In addition to the requirements listed above, students must have six to eight hours in a second language.

**To complete the Field of Concentration:** Students must complete 14 hours of related courses beyond the 100 level. With the aid of an adviser, these courses should be selected from the following areas: anthropology, art history, comparative literature, economics, English, French, Greek, geography, history, Italian, Latin, linguistics, music, philosophy, political science, religious studies, Russian and Eastern Studies, sociology, Spanish, theatre, and women's studies.

#### Teacher Certification Requirements

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

### Minor in German

| | |
|---|---|
| GER 101/102 Basic German | 8 |
| GER 201/202 Intermediate German | 6 |
| GER 205 Reading and Writing Practice | 2 |
| GER 206 Oral Practice | 2 |
| **and** | |
| Course work at the 300 level or above, including GER 307/308 | 15 |

### B.A. or B.S. with a major in HISTORY

The History Department offers to all students a set of significant courses through which an understanding of the growth of civilizations and different social orders can be obtained. The department program is also designed to assure that undergraduate and graduate majors will gain an appreciation of the complexities of the historical process and will examine the dominant historical issues in particular fields of interest. Training in critical thinking and self-expression is crucial to the discipline.

#### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| HIS 104 A History of Europe Through the Mid-Seventeenth Century | 3 |
| HIS 105 A History of Europe from the Mid-Seventeenth Century to the Present | 3 |
| **or** | |
| HIS 106 Western Culture: Science and Technology I | 3 |
| HIS 107 Western Culture: Science and Technology II | 3 |
| **and** | |
| HIS 108 History of the United States Through 1865 | 3 |
| HIS 109 History of the United States Since 1865 | 3 |

#### Major Requirements

1. At least 24 credit hours in history courses in addition to the above premajor requirements. Twelve of the 24 credits must be in history courses numbered 300-599 including 316. The remaining 12 credits may be in courses numbered 200-299 or 300-599. The subject-area distribution of the 24 history credits must include at least six credits in the history of nations or civilizations other than the student's primary area of concentration. (Primary areas: (1) American history; (2) European history; and (3) non-Western history.) There must also be some chronological diversity. If a student concentrates on history after 1789, six credit hours must be in history before 1789 or vice versa. It is usually possible for a student to combine the cultural and chronological diversity requirements. Thus, a student who is concentrating on recent American history could fulfill the cultural/chronological diversity requirements by taking six hours of non-American history before 1789.

2. HIS 316 Junior Seminar: Historical Method and Literature.

**To complete the Field of Concentration:** Students must complete 14 credit hours of nonfreshman, related courses outside the department, selected with the approval of the student's adviser.

All course work should be selected with the approval of the student's adviser.

### Minor in History

A minor in history provides training in critical thinking and expression and a valuable perspective on the varieties of civilizations and modes of human behavior. The minor requires a minimum of 18 hours, to be distributed as follows:

1. A six-hour sequential introduction to the history of a civilization or a nation. This may be selected from:
HIS 104/105 History of Europe
HIS 106/107 Western Culture: Science and Technology I and II
HIS 108/109 History of the United States
HIS 202/203 History of the British People
HIS 229/230 The Ancient World
HIS 247/248 History of Islam and Middle East Peoples
HIS 270/271 Middle Ages
HIS 285/286 History of Russia
HIS 295/296 East Asia

2. Twelve hours of course work above the 200 level, at least six hours of which must be above the 300 level. No more than 12 of the 18 hours required may be in any one of the subfields of American history, European history, or history of the non-Western world.

## B.A. or B.S. with a major in LATIN AMERICAN STUDIES

The Latin American Studies program provides an integrated, interdisciplinary approach to the study of a geographic and cultural region. The core course (LAS 201), the senior course in directed research, and careful faculty supervision are essential components of the degree program. Students choose, however, from a variety of courses in anthropology, economics, geography, history, political science, the Spanish language and Spanish American literature.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

1. LAS 201 Introduction to Latin America ..... 3
2. **plus** one of the following courses:
HIS 206 History of Colonial Latin America, 1492 to 1810 ..... 3
HIS 207 History of Modern Latin America, 1810 to Present ..... 3

**Major Requirements** **Hours**

1. **LAS 401** Directed Research in Latin American Studies (required of all majors) ..... 3

2. **Language Skills** (six hours beyond the second year of college level instruction)
SPI 210 Spanish Composition ..... 3
SPI 211 Spanish Conversation ..... 3
SPI 302 Business and Technical Spanish ..... 3
SPI 310 Stylistic Studies in Spanish ..... 3
SPI 311 Advanced Spanish Conversation (repeatable to a maximum of three credits for LAS degree) ..... 1
SPI 411 Advanced Spanish Language ..... 3
SPI 501 Spanish Phonetics, Pronunciation and Phonemics ..... 3
SPI 502 Survey of the Spanish Language ..... 3
SPI 503 Structure of the Spanish Language ..... 3
SPI 504 Advanced Spanish Grammar and Composition ..... 3

3. **Prehistory and History** (three hours)
ANT 320 Andean Civilization ..... 3
ANT 322 Aztec and Maya Civilization ..... 3
HIS 206 History of Colonial Latin America, 1492 to 1810 ..... 3
HIS 207 History of Modern Latin America, 1810 to Present ..... 3
HIS 561 The Intellectual and Cultural History of Latin America ..... 3
HIS 562 Modern Mexico ..... 3
HIS 560 Latin America in the World ..... 3

4. **Contemporary Latin American Societies** (six hours)
ANT 470G Regional American Ethnography (must be approved by adviser) ..... 3
ANT 420G Contemporary Latin American Cultures ..... 3
ECO 475G The Latin American Economies ..... 3
GEO 324 Geography of Central and South America ..... 3
PS 428G Latin American Government and Politics ..... 3
PS 538 Conflict and Cooperation in Latin American Relations ..... 3
SPI 215 Culture of Mexico ..... 3
SPI 314 Civilization of Spanish America ..... 3
SPI 514 Studies in Spanish American Culture ..... 3

5. **Literature and the Arts of the Americas** (three hours)
SPI 322 Literature, Life and Thought of Spanish America ..... 3
SPI 438G Literature of Social Protest in Spanish America ..... 3
SPI 541 Spanish American Short Story ..... 3
SPI 468G Twentieth Century Spanish American Literature in Translation ..... 3

### Elective

Complete any additional three hours from subject areas 2, 3, 4, or 5 above.

### LAS 395 and 390

These courses may be substituted for one course listed under subject areas 2, 3, 4, or 5 above, or used as the required elective (with the approval of adviser).

**Field of Concentration:** Students must take an additional 18 hours chosen from the following areas: agriculture, allied health, anthropology, architecture, art, communications, economics, education, geography, geology, history, journalism, linguistics, literature and language, philosophy, political science, psychology, sociology or statistics. At least six hours must come from two different areas above (except for those students pursuing a minor or a second major).

### Minor in Latin American Studies

The minor in Latin American Studies provides instruction and broad exposure to the society and culture of Latin America. The minor requires a minimum of 18 credit hours to be distributed as follows:

**Preminor Requirements**

1. LAS 201 Introduction to Latin America ..... 3
2. plus one of the following courses:
HIS 206 History of Colonial Latin America, 1492 to 1810 ..... 3
HIS 207 History of Modern Latin America, 1810 to Present ..... 3

**Minor Requirements**

A minimum of 12 credit hours distributed evenly over the following four subject areas:

1. Language Skills (three hours beyond second-year Spanish)
2. Prehistory and History (three hours)
3. Contemporary Latin American Societies (three hours)
4. Literature and the Arts of the Americas (three hours)

## B.A. or B.S. with a major in LINGUISTICS

Linguistics is an interdisciplinary program combining resources from languages, anthropology, psychology, computer science and philosophy to develop an understanding of the nature and implications of language. The Linguistics program provides solid foundations in phonological and grammatical analysis, as well as in the structure and history of a particular language.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements**

Students must complete the fourth semester of a foreign language.

**Major Requirements**

**Core Courses:**

1. LIN 211 (or, with permission, ANT 215 or ENG 414G)
2. LIN 515 and 516
3. One course in the structure of a language (ENG 512, FR 510, GER 531, SPI 503)
4. One course in the history of a language (ENG 418, FR 603, with special permission, GER 532, SPI 502, or ANT 519)

**Correlated Courses:**

At least three additional courses selected from the core courses and from the following: ANT 518, CS 575, ENG 510, 519, FR 310, 516, PHI 320, 520, 565, PSY 529, SPI 501, LIN 395; and with special permission, ANT 614, FR 603, SPI 601, 602.

**To complete the Field of Concentration:** Students must complete 24 hours of nonfreshman, related courses normally chosen from such disciplines as anthropology, communications, computer science, mathematics, foreign language, psychology and symbolic logic.

**Note:** Additional work in the language of the premajor and a year or more of an ancient or non-Indo-European language are recommended.

### Minor in Linguistics

The minor in linguistics requires 18 hours of course work to be selected as follows:

1. An introductory course: LIN 211, ENG 414G
2. At least two of the following: LIN 515, LIN 516, LIN 519
3. At least one of the following: ENG 512, FR 510, GER 531, SPI 503
4. Additional courses from the following to make up the total of 18 hours: ANT 518, ENG 519, FR 516, GER 532, SPI 501, SPI 502, SPI 506, ENG 510, CS 575, PHI 565, PSY 529 and courses listed under 2. and 3. above.

## Department of Mathematics

The department offers two programs leading to the B.A. or B.S. degree. Students may major in mathematics by completing the requirements for either: Option A, Mathematics or Option B, Mathematical Sciences.

The mathematics option consists of courses offered solely by the department

of mathematics and is intended for those who wish to follow a traditional mathematics career path. The mathematical sciences option consists of courses offered by the departments of computer science, mathematics and statistics, and is intended for those who opt for a career that requires the application of mathematics. The requirements for these programs are outlined below.

## B.A. or B.S. with a major in MATHEMATICS

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

### Option A: Mathematics

**Premajor Requirements** **Hours**

MA 113/114 Calculus I and II ..... 8
CS 121 Computer Science I ..... 4
**or equivalent**

**Major Requirements**

MA 213/214 Calculus III and IV ..... 7
MA 322 Matrix Algebra and Its Applications ..... 3

Students must complete 18 hours in upper division mathematics courses (300 level or above), subject to the following conditions:

a. These courses may not include MA 322.

b. These courses must include **two** of the following:

MA 351 Elementary Topology I ..... 3
MA 352 Elementary Topology II ..... 3
MA 361 Elementary Modern Algebra I ..... 3
MA 362 Elementary Modern Algebra II ..... 3
MA 471G Advanced Calculus I ..... 3
MA 472G Advanced Calculus II ..... 3

c. Students must complete at least **one** of the following course sequences:

MA 351/352 Elementary Topology I and II ..... 6
MA 361/362 Elementary Modern Algebra I and II ..... 6
MA 471G/472G Advanced Calculus I and II ..... 6
MA 481G/483G Differential Equations I and II ..... 6
CS/MA 321/422 Introduction to Numerical Methods and Numerical Solutions of Equations ..... 6
CS/MA 416G and MA/STA 417G Principles of Operations Research I and II ..... 6
MA 433G Introduction to Complex Variables **and** ..... 3
MA 485G Fourier Series and Boundary Value Problems ..... 3

**To complete the Field of Concentration:** Students must complete 14 hours of nonfreshman, related courses outside mathematics. Any field to which mathematics has been significantly applied is acceptable. Examples: physics, chemistry, biology, logic, statistics, computer science, economics, and engineering.

**Note:** Students are reminded that they must complete 24 hours in the Field of Concentration at the 300 level or above. Information on programs for students with special career interests is available from the department office.

### Option B: Mathematical Sciences

**Premajor Requirements** **Hours**

CS 121/122 Computer Science I and II ..... 8
MA 113/114 Calculus I and II ..... 8
MA 213 Calculus III ..... 4
STA 281 Probability and Statistics Using Interactive Computer Techniques ..... 3
MA 214 Calculus IV ..... 3
CS 270 File Processing ..... 3

**Major Requirements**

MA 322 Matrix Algebra and Its Applications ..... 3
MA/STA 320 Introductory Probability ..... 3
CS/MA 321 Introduction to Numerical Methods ..... 3
STA 321 Basic Statistical Theory I ..... 3
STA 422G Basic Statistical Theory II ..... 3
CS/MA 416G Principles of Operations Research I ..... 3
**one** of the following:
MA 471G Advanced Calculus I ..... 3
MA 361 Elementary Modern Algebra I ..... 3
MA 433G Introduction to Complex Variables ..... 3

**Additional Major Requirements**

Students must complete three additional approved courses in the mathematical sciences at or above the 300 level. These courses should be chosen so that the major completes at least **one** of the following sequences:

MA 481G/483G Differential Equations I and II ..... 6
CS/MA 321/422 Introduction to Numerical Methods and Numerical Solutions of Equations ..... 6
CS/MA 416G and MA/STA 417G Principles of Operations Research I and II ..... 6
CS 370/450G Data Structures and Fundamentals of Programming Languages ..... 6

Approved courses in the mathematical sciences include those courses in computer science, engineering mechanics, mathematics, and statistics which are not of a service nature. Specifically excluded are: MA 341, MA 501, MA 502, STA 370, STA 381, and STA 424G. A substitute sequence may be approved upon petition by the student.

**Related Courses**

The student must complete nine additional hours in nonfreshman courses related to the mathematical sciences. The Director of Undergraduate Studies for the Mathematical Sciences has a list of approved and suggested courses.

### Teacher Certification

All students must apply for and be admitted to the appropriate Teacher Education Program in the College of Education to complete a program leading to teacher certification. The general requirements for teacher certification are outlined in the *College of Education* section of this Bulletin.

Students interested in teacher certification in secondary mathematics should work closely with advisers to ensure that all requirements are met. Students must complete MA 113 and MA 114, Calculus I and II. Students are strongly encouraged to contact the College of Education for possible changes in certification requirements.

### Cooperative Education

Qualified students who major in mathematics may participate in the Mathematical Sciences Cooperative Education Program which provides the opportunity for alternate semesters of academic study and full-time employment in business or industry. Guidelines and application forms are available in the Engineering/Math Sciences Co-op Program Office, 320 Robotics Building.

### Minor in Mathematics

Students who choose to minor in mathematics must complete the following:

1. MA 113/114 Calculus I and II **and** ..... 8
   MA 213 Calculus III ..... 4
   **or equivalent**
2. MA 322 Matrix Algebra and Its Applications ..... 3
   **or equivalent**
3. Six additional hours of mathematics courses numbered greater than 213. Possible courses include: MA 214, MA 261, MA 320, MA 321, MA 330, MA 341, MA 351, MA 361, or any 400 level math course.

## MILITARY SCIENCE (Army ROTC)

The Army Reserve Officers' Training program at the University of Kentucky is open to both men and women and follows a general military science curriculum that is normally completed in four years but which may be completed in two. An academic major in military science is not offered. The program's primary objective is to commission the future leadership of all branches of the Active Army, Army Reserve, and Army National Guard.

### Scholarships

Students interested in Army ROTC scholarships should refer to the *Student Financial Aid, Awards, and Benefits* section of this Bulletin.

### Academic Program

Successful completion of 20 credit hours of military science courses while simultaneously completing undergraduate or graduate degree requirements qualifies a student to be commissioned as a Second Lieutenant in the U.S. Army. Required program courses are: MS 103, MS 104, MS 203, MS 204, MS 301, MS 302, MS 341, MS 342, and a computer science course. Also, cadets attend a six-week advanced camp, usually in the summer between the junior and senior years.

An alternative two-year program is available for students with at least two academic years remaining until graduation and who have not completed the MS 100- and MS 200-level courses. This program is particularly suited to the community college student transferring to the University. Students should contact the Professor of Military Science about the six-week Camp Challenge conducted each summer at Fort Knox, Kentucky. Successful completion of the camp enables students to take MS 300-level courses and complete the precommission program in two years.

In certain cases, veterans or students who have completed Army basic training are also eligible to complete the program in two years. Members of the U.S. Army

Reserve or Army National Guard may also directly enroll in the Advanced Course and participate in the Simultaneous Membership program.

The Basic Course classes (100 and 200 level) are orientational and deal with the Army's role in the U.S. government. American military history, small unit organizations/operations, and military geography/map reading are also addressed. No military obligation is incurred by completion of the courses.

Advanced Course classes (300 level) focus on leadership, management, and command/staff responsibilities within military organizations. All upper division Army ROTC students receive $150 per month tax-free subsistence pay during the academic year. Students receive about $700 during the summer while attending Basic and/or Advanced Camp.

Leadership Development (laboratory) periods, held during the academic year at the call of the Professor of Military Science, focus on adventure-type training (e.g., rubber rafting, canoeing, orienteering, rappelling, survival training, etc.). These activities are offered, subject to availability of equipment and facilities, to provide an opportunity to develop leadership, organizational abilities, and confidence.

Professional development and enrichment opportunities are also available through the Kentucky Rangers, the Pershing Rifles Drill Team, and the Scabbard and Blade Honorary Society.

Army ROTC incorporates the dimension of leadership into the academic curriculum and provides training and experience which can be valuable in any profession.

## B.A. or B.S. with a major in
## PHILOSOPHY

Literally, philosophy means "love of wisdom." Philosophy encourages critical and systematic inquiry into fundamental questions of right and wrong, truth and falsehood, the meaning of life, and the nature of reality, knowledge and society. More than any other discipline, philosophy explores the core issues of the Western intellectual tradition. Courses in philosophy are designed to encourage discussion so that students may themselves actively engage in philosophical investigation.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements**

PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages ..... 3
PHI 270 History of Philosophy II: From the Renaissance to the Present Era ..... 3

French or German is highly recommended. Greek is recommended if the student plans to concentrate on ancient philosophy. Latin is recommended if the student plans to concentrate on medieval philosophy.

**Major Requirements**

The major in philosophy requires a minimum of 21 hours of course work at or above the 200 level. The following courses must be included in the 21 hours:

1. PHI 320 Symbolic Logic I ..... 3
2. At least 12 hours must be taken at the 500 level including **one** course chosen from **each** of the following groups:

**Group A**

PHI 503 Topics in Ancient Philosophy ..... 3
PHI 504 Islamic and Jewish Philosophy and the Classical Tradition ..... 3
PHI 506 Topics in Medieval Philosophy ..... 3
PHI 509 Topics in the History of Modern Philosophy ..... 3
PHI 513 Nineteenth Century Philosophy ..... 3
PHI 514 American Philosophy ..... 3
PHI 515 Contemporary Philosophy: The Analytic Turn ..... 3
PHI 516 Contemporary Philosophy: Phenomenological Directions ..... 3
PHI 517 Existentialism ..... 3

**Group B**

PHI 530 Ethical Theory ..... 3
PHI 535 Social and Political Philosophy ..... 3
PHI 537 Philosophy of Law ..... 3
PHI 545 Philosophy of Religion ..... 3
PHI 592 Aesthetics ..... 3

**Group C**

PHI 550 Philosophical Problems in Knowledge and Reality ..... 3
PHI 560 Philosophy of Scientific Method ..... 3
PHI 561 Philosophical Problems in the Natural Sciences ..... 3
PHI 562 Philosophical Problems in the Social and Behavioral Sciences ..... 3
PHI 565 Philosophy of Language ..... 3
PHI 570 Philosophy of History ..... 3
PHI 575 Philosophy of Mind ..... 3

Additional courses for the major may be chosen from the list above or from the following:

PHI 251 Philosophy and Classical Physics
PHI 300 Undergraduate Seminar
PHI 305 Health Care Ethics
PHI 310 Philosophy of Human Nature
PHI 317 Existentialist Thought and Literature
PHI 330 Professional Ethics
PHI 333 Agricultural Ethics
PHI 335 The Individual and Society
PHI 337 Introduction to Legal Philosophy
PHI 338 Morality and Business
PHI 343 Asian Philosophy
PHI 350 Death, Dying and the Quality of Life
PHI 361 Biology and Society
PHI 395 Independent Work
PHI 399 Experiential Learning
PHI 500 Topics in Philosophy (subtitle required)
PHI 520 Symbolic Logic II

**Field of Concentration**

Forty-two semester hours including a minimum of 21 credits in the major and a minimum of 14 credits outside the major. The 42 credits must be in courses at or above the 200 level. The field of concentration will be established by the student and adviser with care exercised to select courses related to the student's total program and aims.

### Minor in Philosophy

The minor in philosophy requires a minimum of 18 hours of course work to include the following:

a. No more than two 100-level courses

b. At least one course in logic (PHI 120, PHI 320, or PHI 520)

c. At least one course in the history of philosophy (PHI 260, PHI 270, or any course from Group A of the undergraduate curriculum)

d. At least three courses (nine hours) at the 300 level or above, excluding PHI 320 and PHI 399.

## PHYSICS AND ASTRONOMY

The Department of Physics and Astronomy helps many students acquire a general understanding and appreciation of physics and astronomy. In the liberal arts tradition, the undergraduate curriculum is complete and flexible enough to allow a graduate with a major in physics to pursue a variety of careers. Many of our graduates continue their studies with graduate work in physics or other areas.

## B.A. or B.S. with a major in
## PHYSICS

For the student interested in combining the study of physics with studies in other areas, the department can assist in the planning of an individual curriculum which meets **both** the minimum requirements of the Physics program and the student's needs and interests. Such planning is of particular value to students intending to pursue careers in engineering, applied physics, medicine, radiation medicine, biophysics, law, meteorology, oceanography, geophysics, environmental sciences, or the teaching of physics and/or physical science at the junior and senior high school levels. By working closely with an adviser, the student with special interests can take advantage of the opportunity to take several other courses from one or more departments outside physics, or double major in physics and another area.

### Bachelor of Arts in Physics

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

**Physics:** Choose 1 or 2

1. PHY 231/232 General University Physics ..... 8
   PHY 241/242 General University Physics Laboratory ..... 2
2. PHY 211/213 General Physics ..... 10

**Chemistry:**

1. CHE 105/107 General College Chemistry I and II ..... 6
2. CHE 115 General Chemistry Laboratory ..... 3

**Mathematics:**

1. MA 113 Calculus I ..... 4
2. MA 114 Calculus II ..... 4
3. MA 213 Calculus III ..... 4

**Major Requirements**

**Requirement One**

PHY 361 Principles of Modern Physics ..... 3
PHY 404G Mechanics ..... 3
PHY 416G Electricity and Magnetism ..... 3
PHY 520 Introduction to Quantum Mechanics ..... 3
MA 214 Calculus IV ..... 3

**Requirement Two**

Any six hours from the physics 300-500 series including at least **one** of the following laboratory courses: PHY 530 **or** PHY 538, 402G, 422, 535, 545.

**To Complete the Field of Concentration:** Students must complete 14 credit hours in a related area (e.g., mathematics or computer science).

## Bachelor of Science in Physics

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

**Physics:** Choose 1 or 2

1. PHY 231/232 General University Physics ..... 8
   PHY 241/242 General University Physics Laboratory ..... 2
2. PHY 211/213 General Physics ..... 10

**Chemistry:**

1. CHE 105/107 General College Chemistry I and II ..... 6
2. CHE 115 General Chemistry Laboratory ..... 3

**Mathematics**

1. MA 113 Calculus I ..... 4
2. MA 114 Calculus II ..... 4
3. MA 213 Calculus III ..... 4

The foreign language requirement should be fulfilled in French, German, or Russian.

**Major Requirements** **Hours**

**Requirement One**

PHY 361 Principles of Modern Physics ..... 3
PHY 404G Mechanics ..... 3
PHY 416G Electricity and Magnetism ..... 3
PHY 417G Electricity and Magnetism ..... 3
PHY 520 Introduction to Quantum Mechanics ..... 3
MA 214 Calculus IV ..... 3

**Requirement Two**

Two courses from the following:

PHY 308 Principles of Optics ..... 3
PHY 522 Heat and Thermodynamics ..... 3
PHY 524 Solid State Physics ..... 3
PHY 554 Fundamental Atomic Physics ..... 3
PHY 555 Fundamental Nuclear Physics ..... 3
PHY 566 Fundamental Particle Physics ..... 3
PHY 567 Introduction to Lasers and Masers ..... 3
AST/PHY 591 Astrophysics I — Stars ..... 3

**Requirement Three**

PHY 535 and two other laboratory courses selected from the following:

PHY 402G, 422, and 530; PHY 395, Independent Work in Physics, may be substituted for PHY 402G, 422 or 530, subject to the condition that the project be in experimental or computational physics. A list of available projects is published for faculty advisers each semester.

**To Complete the Field of Concentration:** Students must complete 14 credit hours in a related area (e.g., mathematics or computer science).

## Suggested Curriculum for B.S. in Physics

**Freshman Year**

**First Semester** **Hours**

ENG 101 Writing I ..... 3
CHE 105 General College Chemistry I ..... 3
MA 113 Calculus I ..... 4
PHY 105 Physics and Astronomy Today (suggested for freshmen) ..... 1
University Studies ..... 3

**Second Semester**

ENG 102 Writing II ..... 3
CHE 107 General College Chemistry II ..... 3
MA 114 Calculus II ..... 4
PHY 231 General University Physics ..... 4
PHY 241 General University Physics Laboratory ..... 1

**Sophomore Year**

**First Semester**

CHE 115 General Chemistry Laboratory ..... 3
MA 213 Calculus III ..... 4
PHY 232 General University Physics ..... 4
PHY 242 General University Physics Laboratory ..... 1
Foreign Language ..... 3

**Second Semester**

MA 214 Calculus IV ..... 3
PHY 361 Principles of Modern Physics ..... 3
PHY 308 Principles of Optics ..... 3
Foreign Language ..... 3
University Studies ..... 6

**Junior Year**

**First Semester**

PHY 404G Mechanics ..... 3
PHY 416G Electricity and Magnetism ..... 3
PHY 402G Electronic Instrumentation and Measurements ..... 3
University Studies ..... 3
Foreign Language ..... 3

**Second Semester**

PHY 417G Electricity and Magnetism ..... 3
PHY 535 Experimental Physics: Atomic and Nuclear ..... 3
*MA 322 Matrix Algebra and Its Applications ..... 3
Foreign Language ..... 3
COM 199 Presentational Communication Skills ..... 1

**Senior Year**

**First Semester**

*MA 432G Methods of Applied Mathematics I ..... 3
PHY 520 Introduction to Quantum Mechanics ..... 3
PHY 522 Heat and Thermodynamics ..... 3
PHY 530 Experimental Physics: Optics and Spectroscopy ..... 2
PHY 477 Physics and Astronomy Seminar ..... 1
University Studies ..... 3

**Second Semester**

PHY 554 Fundamental Atomic Physics ..... 3
*MA 433G Introduction to Complex Variables ..... 3
PHY 477 Physics and Astronomy Seminar ..... 1
University Studies ..... 6
PHY 524 Solid State Physics **or** ..... 3
PHY 555 Fundamental Nuclear Physics **or** ..... 3
PHY 556 Fundamental Particle Physics ..... 3

*These math courses are suggested courses. A total of 14 credit hours in math, computer science, engineering or other areas related to physics but outside the department must be completed to satisfy the college Field of Concentration requirement. A total of 42 hours in physics and related areas must be taken to fully satisfy the Field of Concentration requirement.

## Minor in Physics

MA 113, 114, and 213; or equivalent ..... 12
PHY 211/213 or PHY 231/232/241/242 ..... 10
PHY 361 ..... 3
At least eight credits chosen from the following: PHY 402G, 404G, 416G, 417G, 472G, 504, 508, 520, 522, 524, 525, 530, 535, 545, 546, 554, 555, 556, and 567 and 591.

### Astronomy

An astronomer seeks to understand the Universe by making measurements of the radiation from cosmic objects and applying the laws of physics to them. Consequently, the talents and abilities needed for astronomy are similar to those required for a career in physics. A prospective astronomer should be skilled in physics and mathematics, should have an intense curiosity about natural phenomena, and should be interested in understanding these phenomena in an exact and quantitative way.

For students with an interest in astronomy, this department offers the B.S. degree in physics with a concentration in astronomy. Among the major requirements, AST/PHY 592, Astrophysics II, The Galaxy is strongly recommended as a course within the area of concentration. PHY 395, Independent Work in Physics, may be substituted for one of the laboratory courses of Requirement Three, subject to the work being done in astronomy and astrophysics. Students are encouraged, though not required, to enroll in AST 191, The Solar System, and AST 192, Galactic and Extra-galactic Astronomy.

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**B.A. or B.S. with a major in**

# POLITICAL SCIENCE

Political Science focuses on the manner by which values and resources are authoritatively allocated in societies and in international relations. In addition to providing a good liberal arts preparation, the discipline is particularly helpful in preparing for careers such as law, government administration, diplomatic service, public planning, policy analysis, journalism, political activity and the like. Also, the department's courses provide the necessary background and skills for pursuing graduate work in political science and related fields.

Political Science courses at UK cover a wide range of topics, e.g., classic and modern political theory; the governments of foreign nations; international law and organizations; relations between different countries; public opinion, political parties, campaigns and electoral behavior; public policy in the U.S. and other countries; the functioning of legislative, executive and judicial institutions; state government; and urban politics. Students may also take special reading courses and be placed in internships through the department.

Political Science courses are designed not only to convey information to students, but to develop their skills in analyzing

political arguments and in resolving political and governmental policy questions.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

PS 101 American Government ..... 3
PS 202 Orientation to Political Science ..... 1
**and** two courses from among the following:
PS 245 Introduction to Political Analysis ..... 3
PS 271 Introduction to Political Behavior ..... 3
PS 210 Introduction to European Politics: East and West ..... 3
PS 212 Culture and Politics in the Third World ..... 3
PS 235 World Politics ..... 3
PS 240 Ideology, Political Change and Contemporary Industrial Society ..... 3
PS 280 Issues in Public Policy ..... 3

### Major Requirements

A minimum of 21 hours is required in political science, of which at least 15 must be at the 300 level or above. At least one course must be taken in each of the fields 1, 2, and 3 listed below and at least one course must be taken in another field. Courses used to satisfy the premajor requirements cannot be used to satisfy these distribution requirements. Undergraduate courses are divided into the following fields:

**Field One** **Hours**
**Theory and Methodology:**
PS 245 Introduction to Political Analysis ..... 3
PS 240 Ideology, Political Change and Contemporary Industrial Society ..... 3
PS 441G Early Political Theory ..... 3
PS 442G Modern Political Theory ..... 3
PS 545 American Political Thought ..... 3
PS 549 Science, Technology and Political Theory ..... 3

**Field Two**
**Comparative Government:**
PS 210 Introduction to European Politics: East and West ..... 3
PS 212 Culture and Politics in the Third World ..... 3
PS 412G Comparative Government-Parliamentary Democracies II ..... 3
PS 417G Survey of Sub-Saharan Politics ..... 3
PS 419G The Governments and Politics of Eastern Asia ..... 3
PS 420G Governments and Politics of South Asia ..... 3
PS 428G Latin American Government and Politics ..... 3
PS 429G Government and Politics in Russia and the Post-Soviet States ..... 3
PS 532 Comparative Foreign Policies ..... 3
PS 538 Conflict and Cooperation in Latin American Relations ..... 3

**Field Three**
**International Relations:**
PS 235 World Politics ..... 3
PS 430G The Conduct of American Foreign Relations ..... 3
PS 431G National Security Policy ..... 3
PS 433G Politics of International Economic Relations ..... 3
PS 436G International Organization ..... 3
PS 437G Dynamics of International Law ..... 3
PS 439G Contemporary International Problems ..... 3
PS 532 Comparative Foreign Policies ..... 3
PS 538 Conflict and Cooperation in Latin American Relations ..... 3
PS 539 The Foreign Policy of the Soviet Union ..... 3

**Field Four**
**Political Process:**
PS 470G American Political Parties ..... 3
PS 472G Political Campaigns and Elections ..... 3
PS 473G Public Opinion ..... 3
PS 474G Political Psychology ..... 3
PS 476G Legislative Process ..... 3
PS 479 Women and Politics ..... 3
PS 480G Government and the Economy ..... 3
PS 571 Interest Groups ..... 3
PS 584 The American Presidency and the Federal Executive ..... 3

**Field Five**
**Public Administration:**
PS 482G Food, Energy, and Ecology ..... 3
PS 487G Introduction to Public Administration ..... 3
PS 489G The Analysis of Public Policy ..... 3
PS 455G Intergovernmental Relations in the American Federal System ..... 3
PS 580 The Budgetary Process ..... 3
PS 584 The American Presidency and the Federal Executive ..... 3

**Field Six**
**Public Law and Judicial Behavior:**
PS 461G Civil Liberties ..... 3
PS 463G The American Judicial Process ..... 3
PS 465G Constitutional Law ..... 3

**Field Seven**
**State and Local Government:**
PS 255 State Government ..... 3
PS 450G Rural Local Government ..... 3
PS 452G Municipal Government ..... 3
PS 453G Urban Government and Politics ..... 3
PS 454G Politics of Land Use and Growth Management ..... 3
PS 455G Intergovernmental Relations in the American Federal System ..... 3
PS 456G Appalachian Politics ..... 3
PS 557 Kentucky Government and Politics ..... 3

**To complete the Field of Concentration:** Students must take a minimum of 14 hours outside political science to fulfill this requirement. At least six hours in each of two other departments must be included, unless the student has a double major.

### Minor in Political Science

The minor in political science requires a prerequisite course (PS 101 or PS 280) and 18 hours of course work at the 200 level or above to be distributed as follows:

1. Six hours of 200-level courses including PS 271 and one of the following: PS 210, PS 235, or PS 240.

2. Four other courses, at least three of which must be at the 400 or 500 level.

## B.A. or B.S. with a major in PSYCHOLOGY

The undergraduate curriculum in psychology includes courses in the major content areas of psychology. The program provides course work emphasizing the fundamental concepts and techniques of this basic behavioral science. In addition to course work, the program provides for experience in conducting and analyzing laboratory and field research.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

PSY 100 Introduction to Psychology ..... 4
PSY 195 Orientation to Psychology ..... 1
PSY 215 Experimental Psychology ..... 4

**Major Requirements** **Hours**

Students must complete a minimum of 18 hours in psychology to include the following:

**Requirement One**
PSY 216 Applications of Statistics in Psychology .. 4

**Requirement Two**
One of the following courses:
PSY 423 Processes of Psychological Development ..... 3
PSY 523 Research Methods in Developmental Psychology ..... 4
PSY 525 Human Senses and Perception ..... 3
PSY 527 Cognitive Processes ..... 3

**Requirement Three**
One of the following courses:
PSY 532 Personality ..... 3
PSY 533 Abnormal Psychology ..... 3

**Requirement Four**
PSY 444 Social Psychology ..... 3

**Requirement Five**
One of the following courses:
PSY 550 Psychology of Learning ..... 3
PSY 552 Animal Behavior ..... 3
PSY 556 Behavioral Neuroscience ..... 3

**Requirement Six**
One of the following laboratory courses:
PSY 521 Cognitive Processes Laboratory ..... 1
PSY 523 Research Methods in Developmental Psychology ..... 4
PSY 526 Human Senses and Perception Laboratory ..... 1
PSY 547 Experimental Social Psychology ..... 4
PSY 551 Psychology of Learning Laboratory ..... 1
PSY 553 Animal Behavior Laboratory ..... 1
PSY 557 Behavioral Neuroscience Laboratory ..... 1

**Elective psychology courses include any course listed in Requirements Two through Six not taken to fulfill a requirement plus any of the following:**

PSY 200 Thinking and Problem Solving ..... 3
PSY 223 Developmental Psychology ..... 3
PSY 301 Introduction to Humanistic Psychology ..... 3
PSY 305 Psychology of Sex Roles ..... 3
PSY 331 The Psychology of Adjustment ..... 3
PSY 395 Independent Work in Psychology ..... 1-3
PSY 399 Field Based/Community Based Education ..... 1-6
PSY 400 History and Systems of Psychology ..... 3
PSY 459 Drugs and Behavior ..... 3
PSY 495 Senior Thesis Seminar ..... 3
PSY 496 Senior Thesis Research ..... 3
PSY 502 Introduction to Industrial Psychology ..... 3
PSY 503 Psychology of Industrial Personnel Procedure ..... 3
PSY 528 Dimensions of Aging ..... 3
PSY 529 Psycholinguistics ..... 3
PSY 534 Child Psychopathology ..... 3
PSY 535 Psychological Testing ..... 3
PSY 539 Interpersonal Dynamics ..... 3

PSY 545 Small Group Behavior ..... 3
PSY 548 Applied Social Psychology ..... 3
PSY 558 Biology of Motivation ..... 3
PSY 561 Advanced Topics in Foundations of Clinical Psychology (subtitle required) ..... 3
PSY 562 Advanced Topics in Cognitive Psychology (subtitle required) ..... 3
PSY 563 Advanced Topics in Developmental Psychology (subtitle required) .... 3
PSY 564 Advanced Topics in Learning (subtitle required) ..... 3
PSY 565 Advanced Topics in Neuroscience (subtitle required) ..... 3
PSY 566 Advanced Topics in Social Psychology (subtitle required) ..... 3

**To complete the Field of Concentration:** Students must complete a minimum of 14 hours of nonfreshman, related courses. The student should consult with the adviser about course selection.

### Minor in Psychology

The minor in psychology requires a minimum of 20 hours to include the following:

1. **Prerequisite courses**

PSY 100 Introduction to Psychology ..... 4
PSY 215 Experimental Psychology ..... 4

2. Any **two** courses from these four options:

**Cognitive studies** (one of the following)
PSY 423 Processes of Psychological Development ..... 3
PSY 523 Research Methods in Developmental Psychology ..... 4
PSY 525 Human Senses and Perception ..... 3
PSY 527 Cognitive Processes ..... 3

**Clinical psychology** (one of the following)
PSY 532 Personality ..... 3
PSY 533 Abnormal Psychology ..... 3

**Social psychology**
PSY 444 Social Psychology ..... 3

**Behavioral and neural studies** (one of the following)
PSY 550 Psychology of Learning ..... 3
PSY 552 Animal Behavior ..... 3
PSY 556 Behavioral Neuroscience ..... 3

3. Two additional upper division courses, one of which must be at or above the 400 level ..... 6

## B.A. or B.S. with a major in RUSSIAN AND EAST EUROPEAN STUDIES

The Department of Russian and Eastern Studies offers language courses in Russian, Japanese, Chinese, Arabic, and Hebrew, as well as related literature and culture courses.

### Russian and East European Studies

The Department of Russian and Eastern Studies offers an undergraduate major in Russian and East European Studies. The program is designed to produce an integrated knowledge of Russian language, literature, culture, history, politics, and society. This interdisciplinary major provides the broadest possible base for further study of the former Soviet Union and East Europe.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**
RAE 202 Intermediate Russian ..... 4
RAE 270 Introduction to Russian Culture **or** ..... 3
RAE 280 Russian and Soviet Culture of the 20th Century ..... 3

### Field of Concentration

Students must complete a total of 42 credit hours at the 200 level or above, with at least 24 hours at the 300 level or above, distributed as follows.

**History** (six hours)
HIS 285 History of Russia to 1825 ..... 3
HIS 286 History of Russia since 1825 ..... 3

**Literature** (six hours)
RAE 380 Survey of Nineteenth-Century Russian Literature (in English) ..... 3
RAE 390 Modern Russian Literature (in English) ..... 3

**Language** (twelve hours)
RAE 303 Russian Pronunciation and Conversation ..... 3
RAE 304 Russian Pronunciation and Conversation ..... 3
RAE 305 Advanced Russian Grammar ..... 3
RAE 410 Structure and Stylistics of Russian **or** ..... 3
RAE 411 Structure and Stylistics of Russian ..... 3

Two semesters of another language of the U.S.S.R. or Eastern Europe may be substituted for the third-year Russian requirement with the approval of the RAE adviser.

**Social Sciences** (three hours)
PS 429G Government and Politics in Russia and the Post-Soviet States ..... 3
PS 491 Special Topics in Political Science ..... 1-3 (when topic is appropriate)
PS 539 The Foreign Policy of the Soviet Union ..... 3
SOC 561 Comparative Sociology ..... 3 (when topic is appropriate)
GEO 329 Geography of the Soviet Union ..... 3
ECO 465G Comparative Economic Systems ..... 3

**Interdisciplinary Seminars** (three hours)

One of the following:
RAE 401 Seminar in Russian and East European Studies I ..... 3
RAE 402 Seminar in Russian and East European Studies II ..... 3
RAE 403 Seminar in Russian and East European Studies III ..... 3
RAE 404 Seminar in Russian and East European Studies IV ..... 3

In addition, students must complete at least 13 elective credits at or above the 200 level from Russian Area courses selected with the approval of the RAE adviser. At least 14 credit hours in the field of concentration must be taken in other departments.

### Minor in Russian

The minor in Russian requires 18 hours of course work beyond second-year proficiency in Russian language (RAE 202) distributed as follows:

RAE 303 Russian Pronunciation and Conversation ..... 3
**or** RAE 304 Russian Pronunciation and Conversation ..... 3
**and** RAE 305 Advanced Russian Grammar ..... 3
**or** RAE 306 Advanced Russian Grammar ..... 3

and 12 hours of additional course work in designated Russian area studies courses, of which at least 9 hours must be in RAE courses.

**Note:** RAE 395, Independent Work in Russian, may not be used for the minor.

## B.A. or B.S. with a major in SOCIOLOGY

Sociology emphasizes the study of human behavior and basic social processes. The discipline provides excellent preparation for careers in a variety of occupations and professions including planning and community development, law, public relations and advertising, personnel administration, private business and government administration, health and human services, family relations, criminal justice fields, and others.

Students may major or minor in sociology. The department offers a Bachelor of Arts and a Bachelor of Science through the College of Arts and Sciences. Students may also complete a second major or minor in sociology even though they are enrolled in other colleges. In addition, students seeking certification in social studies education at the secondary level through the College of Education may also emphasize sociology in their programs.

Courses offered by the department cover a wide range of topics and issues. Areas such as social inequality, health, social psychology, social change, institutions and organizations, social differentiation, criminology and deviance, work, gender, and inequality, and family comprise a large part of the curriculum. Students may also pursue special readings courses and experiential education placements or internships through the department.

### Degree Requirements

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**
SOC 101 Introductory Sociology **or** ..... 3
GEN 102 The Dynamics of Rural Social Life **and** ..... 3
Any other 100- or 200-level sociology course ..... 3

All students wishing to declare a major in sociology should see the Director of Undergraduate Studies in Sociology. This should be done prior to declaring the major or during the first semester of residence in the case of entering freshmen.

### Major Requirements

Students must complete at least 21 hours in sociology courses above the 100 level including the following:

SOC 302 Sociological Research Methods I ..... 3

SOC 303 Sociological Research Methods II ..... 3
SOC 451G Foundations of
Sociological Theory ..... 3
SOC 452G Contemporary Social Theory ..... 3

**To complete the Field of Concentration:** At least 14 hours of nonfreshman courses in areas related to the discipline of sociology and to the interests of the student are required to fulfill this requirement. Courses must be taken from at least two other areas unless the student has a double major. These courses should be chosen in consultation with the student's academic adviser.

**Plan Sheet:** Students are required to file a Plan Sheet by the end of the junior year. The Plan Sheet summarizes the combination of 42 hours in the major and related areas which make up the Field of Concentration. This Plan Sheet must be developed in consultation with a faculty adviser.

Students, especially those contemplating graduate work, are strongly urged to develop skills in the areas of statistics and uses of the computer as well as taking additional theory and research methods courses.

### Minor in Sociology

**Prerequisites** **Hours**

SOC 101 Introductory Sociology **or** ..... 3
GEN 102 The Dynamics of Rural Social Life ..... 3
Any other 100- or 200-level sociology course ..... 3

**Minor Requirements**

Students complete an additional 15 hours in sociology, at least 12 of which must be at the 300 level or above and must include **one** of the following six-hour blocks:

SOC 302 and SOC 303 **or**
SOC 451G and SOC 452G **or**
SOC 302 and SOC 451G

Any student wishing to minor in sociology should file an application with the Director of Undergraduate Studies in Sociology prior to entering the program.

## SPANISH AND ITALIAN LANGUAGES AND LITERATURES

The Department of Spanish and Italian Languages and Literatures aims to develop the student's language skills, to provide an understanding of the cultures and literatures of the Spanish and Italian speaking worlds, and to enhance the student's career opportunities in a multicultural society. The department offers majors and minors in both Spanish and Italian.

### B.A. or B.S. with a major in SPANISH

**Degree Requirements**

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

1. SPI 210 Spanish Composition ..... 3
2. SPI 211 Spanish Conversation ..... 3
3. Six hours in another foreign language

**Major Requirements**

Students must complete 21 hours in 300-500 level Spanish courses, nine of which must be 400-500 level. A minimum of nine hours of Spanish or Spanish-American literature must be completed and must include either SPI 320 or SPI 322.

**To complete the Field of Concentration:** Students must take 15 hours of nonfreshman, related courses chosen from anthropology, art history, classics, comparative literature, English, French, geography, German, history, honors, Italian, Latin American studies, linguistics, music, philosophy, political science, Russian and Eastern Studies, sociology, theatre, or other courses selected with the approval of an adviser.

**Electives** (6 hours)

1. Must be taken at the 200 level and above.
2. May be taken in Spanish or departments within the Field of Concentration.

### Minor in Spanish

Undergraduates wishing to minor in Spanish should take a total of 21 hours based on the following distribution:

1. SPI 202 **or** SPI 242 **or** equivalent
2. SPI 210
3. SPI 211
4. Twelve additional hours selected from Spanish courses beyond the first four-semester sequence, at least six hours of which must be taken at the 300 level or above. (At least one course, 3 hours, must be taken in Spanish or Spanish-American literature.)

**Note:** No courses taken in translation may be counted toward the minor in Spanish.

**Teacher Certification Requirements**

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

### B.A. or B.S. with a major in ITALIAN

**Degree Requirements**

In addition to satisfying University Studies requirements and the College requirements, each student completes the following:

**Premajor Requirements** **Hours**

1. SPI 292 Intermediate Italian ..... 3
2. Six hours of another language ..... 6

**Major Requirements** **Hours**

1. SPI 295 Italian Conversation and
Composition ..... 3
**or** SPI 296 Italian Civilization ..... 3

2. Fifteen hours in 400-500 level courses in Italian. Must include:

SPI 443G Survey of Italian Literature I **or** ..... 3
SPI 444G Survey of Italian Literature II ..... 3

**To complete the Field of Concentration:** Students complete 22 hours of nonfreshman, related courses chosen from the areas listed in the Spanish Field of Concentration as well as from Spanish courses. Eight hours may be elective Italian courses. The student should consult with an adviser about course selection.

### Minor in Italian

**Hours**

SPI 291/292 Intermediate Italian (or equivalent) .... 6
SPI 295 Italian Conversation and Composition ..... 3
SPI 296 Italian Civilization ..... 3
**Plus** six hours beyond the 200 level, excluding courses in English translation ..... 6

## STATISTICS

The Department of Statistics at the University of Kentucky is concerned with three essential functions: teaching, research, and consulting in statistics.

The department does not offer an undergraduate degree, but students may elect to include statistics as part of a topical major. The program in mathematical sciences also includes several statistics courses. The Master of Science and the Doctor of Philosophy degrees are offered.

Research is being actively pursued in statistical theory and methods, both parametric and nonparametric, experimental design, linear models, inference, stochastic processes, and applied probability.

Consultation on statistical analysis and interpretation of data is provided to research workers on and off the campus. Particular attention is paid to the consulting needs of graduate students.

## INTERDISCIPLINARY MINORS

### African-American Studies

The minor in African-American Studies provides students with an opportunity to examine the contributions of established academic disciplines towards the understanding of African peoples, particularly those peoples in the New World. It also provides a framework for research and analysis of issues which focus on black experiences in artistic, literary, historical, and sociopolitical environments. The minor requires 21 hours of study as follows:

1. AAS 200 Introduction to African-American Studies

2. a. At least **six** hours of course work in the humanities (as approved by the African-American Studies Committee). Among these are:

A-H 390/590 Topical Research/Studies in Art History (if appropriate)
ENG 264 Major Black Writers
ENG 356 Studies in Black American Literature
ENG 363 Special Topics in Literature (if appropriate)
ENG 390 Undergraduate Seminar (if appropriate)
FR 504 Topics in French Literature and Culture (if appropriate)
HIS 254 History of Sub-Saharan Africa
HIS 260 Afro-American History to 1865
HIS 261 Afro-American History 1865-Present
MUS 300 History of Jazz
PHI 300 Undergraduate Seminar (if appropriate)
SPI 468G Twentieth Century Spanish American Literature in Translation (if appropriate)

2. b. At least six hours in the social sciences (as approved by the African-American Studies Committee).

Among these are:
ANT 431G Cultures and Societies of Sub-Saharan Africa
EDC 550 Teaching the Culturally Different

GEO 336 Geography of Sub-Saharan Africa
HIS 585 The Age of Jim Crow, 1880-1930
PS 417G Survey of Sub-Saharan Politics
PS 461G Civil Liberties
SOC 532 Race and Ethnic Relations

3. AAS 400 Special Topics in African-American Studies
4. AAS 401 Independent Reading and Research in African-American Studies

**NOTE:** Courses in English and history are strongly recommended. Courses in experiential education may be counted toward the minor if approved by the Program Director and the dean of the college.

### Appalachian Studies

This minor offers the student with serious interests in Appalachian regional studies an opportunity to pursue a minor concentration to complement a major in one of the university's professional or liberal arts programs. This interdisciplinary program enables students to comprehend more fully the history, social structure, and culture of the region — its people, its problems, and its future.

The minor in Appalachian Studies requires 18 hours of course work to include the following:

1. At least six hours in Appalachian Studies courses in the humanities. Among these are:

ENG 478G Appalachian Folklore
HIS 580 History of Appalachia
HIS 650 Readings in Special Topics in History (if appropriate)
HIS 700 Special Problems in History (if appropriate)
MUS 301 Appalachian Music

2. At least six hours in Appalachian Studies courses in the social sciences. Among these are:

FAM 550 Child Development and Family Life in Appalachia
GEO 321 Land, People, and Development in Appalachia
PS 456G Appalachian Politics
ANT/SOC 534 The Southern Appalachians: A Sociological Interpretation

3. Any additional courses listed above or below to total at least 18 hours. Among these are:

APP 200 Introduction to Appalachian Studies
EXP 396 Experiential Education (if appropriate)
BIO 261 Field Botany
UK 300 University Course (if appropriate)

**Note:** Introduction to Appalachian Studies (APP 200) is strongly recommended. Individually arranged courses in independent study and experiential education may be counted toward the minor if approved by an Appalachian Studies adviser. Special Topics courses offered by the various departments may also be counted, if appropriate.

For more information about a minor in Appalachian Studies, call, write, or visit the Appalachian Center, 110 Maxwelton Ct., Lexington, KY 40506-0347, (606) 257-4852.

### Environmental Studies

Environmental considerations permeate almost every facet of modern life, and concern for "the environment" is practically universal as we approach the twenty-first century. The minor in Environmental Studies is designed to provide students with the opportunity to become conversant in a range of environmental topics, whether as private citizens in their daily lives or as professional members of corporate, government, legal, medical, and educational circles.

The minor draws on topics and perspectives from the natural and physical sciences, the social sciences, and the humanities to underscore the interdisciplinary nature of environmental issues and problems. Students taking the minor are encouraged to integrate the program with their major study focus in order to gain a competitive advantage in grappling with environmental topics.

The minor in Environmental Studies requires 18 hours of course work including the following:

1. ENS 200 Introduction to Environmental Studies ..... 3

2. Six hours chosen from the following list of **sociocultural** perspectives:

ANT 235 Food and Culture ..... 3
GEO 210 Pollution, Hazards, and Environmental Management ..... 3
GEO 550 Geography of Energy and Natural Resources ..... 3
PHI 333 Agricultural Ethics ..... 3
PS 482G Food, Energy, and Ecology ..... 3
SOC 260 Population, Resources and Change ..... 3
ENS 300 Special Topics (Subtitle required) ..... 3
ENS 395 Independent Work ..... 3

3. Six hours chosen from the following list of **science and technology** perspectives:

GEO 251 Weather and Climate ..... 3
GLY 242 Endangered Planet: An Introduction to Environmental Geology ..... 3
GLY 585 Hydrogeology ..... 3
BIO 451G Introductory Ecology ..... 4
ENS 300 Special Topics (Subtitle required) ..... 3
ENS 395 Independent Work ..... 3

4. ENS 400 Senior Seminar (Subtitle required) .... 3

At least six of the twelve elective hours must be at the 300-level or above.

Elective courses must be drawn from outside the student's major.

Alternative elective courses may be approved by the Environmental Studies Program Director.

For further information, contact Professor Richard H. Schein, 1441 Patterson Office Tower, (606) 257-2119.

### Women's Studies

The minor in Women's Studies provides students an opportunity to examine and integrate the contributions of established academic disciplines in understanding the historical and contemporary roles and status of women. Also, the program provides a framework for research and analysis which focus upon women's issues. The minor requires 18 hours of course work, as outlined below:

1. WS 200 Introduction to Women's Studies in the Social Sciences*
   **and** WS 201 Introduction to Women's Studies in the Arts and Humanities*

*Taken together, these courses fulfill the University Studies cross-disciplinary requirement.

2. An additional 12 hours in courses identified by the Women's Studies Committee. Among these are:

WS 300 Topics in Women's Studies (subtitle required)
WS 399 Internship in Women's Studies
WS 400 Research in Women's Studies
ANT 255 Human Sexuality in Cross-Cultural Perspective
ANT 354 The Family in Cross-Cultural Perspective (same as FAM/SW/SOC 354)
*ANT 401 Sex Roles in Cross-Cultural Perspective
HSE 340 Women, Health and Healing
HSE 440 Women and Mental Health
*ENG 375 The Woman Writer
ENG 490G Topics of Gender in Literary Studies (subtitle required)
FAM 551 Woman in Contemporary Society
HIS 265 History of Women in America
HIS 596 The U.S. Family in Historical Perspective (same as FAM/SOC 509)
PS 479 Women and Politics
PSY 305 Psychology of Sex Roles
*SOC 335 Women and Men in Society

*Any two of these courses count toward University Studies cross-disciplinary requirement.

In addition, seminars and topics courses may be counted toward the minor when their content is applicable. A list of such courses is available every semester before registration.

For further information, contact Professor Patricia Cooper, Director of Women's Studies, 915 Patterson Office Tower, (606) 257-1388.

# BUSINESS AND ECONOMICS

*Richard W. Furst, D.B.A., is Dean of the College of Business and Economics; Donald Mullineaux, Ph.D., Associate Dean.*

The College of Business and Economics was established at the University of Kentucky in 1925 as the College of Commerce. The name was changed to College of Business and Economics in 1966.

The objective of the instructional programs in the College of Business and Economics is to prepare the student for a lifelong career in business, government, or research and teaching. The programs are structured to provide each student an opportunity to acquire a background in the basic areas of the arts and sciences, to obtain a broad knowledge of business and economics, and to study in depth one or more fields of special interest.

**Accreditation**

The College of Business and Economics is a member of the American Assembly of Collegiate Schools of Business which accredits undergraduate programs in accounting, business administration, and economics as well as master's programs in accounting and business administration. The programs of the college enjoy the Assembly's full accreditation.

**Undergraduate Programs in Business and Economics**

The University of Kentucky grants the following degrees in the College of Business and Economics:

- Bachelor of Business Administration
- Bachelor of Science in Accounting
- Bachelor of Science in Business and Economics

Students pursuing the Bachelor of Business Administration may select from these majors: Decision Science and Information Systems, Finance, Management, and Marketing. Students pursuing the Bachelor of Science in Business and Economics major in economics.

## ADMISSION POLICY

Admission to the University is sufficient for admission to the College of Business and Economics for students with less than a junior standing. However, lower division admission to the college or any admission to the University does not guarantee upper division admission to one of the degree programs in the College of Business and Economics. In general, admission depends upon the qualifications and preparation of the applicants, as well as the availability of the resources for maintaining quality instruction.

Upper division admission into a degree program is necessary in order to be granted a baccalaureate degree from the College of Business and Economics.

Annually the College of Business and Economics faculty will establish the minimum standards required for admission to the college. The standards will be established at least one year prior to their implementation. Any change in standards will be implemented at the beginning of the academic year (fall semester) and will be in effect for the entire academic year. If the standards are to be changed, the Dean of the College of Business and Economics will submit the proposed change by February 1 to the University Senate Council for approval, with prior circulation to the University deans and directors. The grade-point average will be no lower than 2.5.

Students who have attained a 3.0 cumulative grade-point average or higher in the English and premajor component required of all students in the College of Business and Economics and have completed 60 semester hours of college-level credit will be assured admission.

To be considered for admission to any of the undergraduate degree programs offered by the College of Business and Economics, an applicant must fulfill the following requirements:

1. Enrollment in the University of Kentucky (Students are considered for acceptance by the college only after acceptance by the University.);
2. Completion of 60 semester hours with a minimum cumulative grade-point average of 2.5;
3. Completion of the English and premajor component required of all students within the College of Business and Economics with a minimum grade-point average of 2.5 (The courses meeting these requirements are listed under *Graduation Requirements*.);
4. Submission of an application form which includes an official transcript and a list of courses planned, indicating that the English and premajor courses will be completed prior to taking upper division work.

Applications for admission to the College of Business and Economics, whether for upper division or lower division status, must be received by the Advising Center of the College of Business and Economics no later than May 1 for summer sessions, August 1 for the fall semester, and December 1 for the spring semester. Normally students apply for upper division admission during the second semester of their sophomore year (the semester in which they will have completed the English and premajor components).

Those students seeking upper division admission who have not completed 60 semester hours or all of the English and premajor courses will be permitted to advance register for upper division courses if they satisfy the minimum grade-point average standards at the time of application and they are concurrently enrolled in the courses necessary to complete the En-



glish and premajor requirements. Failure to meet all requirements for admission prior to beginning upper division work will result in denial of admission.

Students not admitted to an upper division program should be aware that others who have been admitted will be given first preference for enrollment in the upper division courses offered by the College of Business and Economics.

Enrollment in Business and Economics courses numbered 300 or above will be limited to:

1. Business and Economics students;
2. Non-Business and Economics students who are registered for specific programs requiring Business and Economics courses;
3. Other students or categories of students with specific permission of the department offering the course (department may choose to declare certain courses as open enrollment courses).

In the admission considerations, when personal, academic, professional, or intellectual circumstances tend to discount low academic scores, admission may be granted if there is other persuasive evidence of both the capability and motivation to undertake successfully a Business and Economics program.

An applicant from a non-English speaking country is required to take the Test of English as a Foreign Language (TOEFL) and must have a minimum score of 550 in order to be considered for admission. (An equivalent score from another English proficiency test similar to TOEFL may be allowed upon request.)

### Scholarships

Since the College of Business and Economics has a selective admission policy at the junior level, the majority of scholarship funds are awarded to students who have qualified for, or are currently enrolled in, the upper division program of the college. Scholarships are generally awarded in the spring for the upcoming academic year. The deadline for scholarship applications is usually mid-April. For scholarship information and applications, contact the Undergraduate Advising Center.

## DIVISIONS

### School of Accountancy

The faculty in the School of Accountancy is committed to providing the best possible educational experience for students. The faculty has both breadth and depth of training and experience in public accounting, industry, government and regulated industries, and previous classroom experience.

### Decision Science and Information Systems

The faculty of the Department of Decision Science and Information Systems provides theoretical and applied courses in management science, operations management, management information systems, decision support systems, and business expert systems. Members of the department have interest and experience in both the theoretical development and business application of decision systems.

### Department of Economics

The Department of Economics provides theoretical and applied courses in widely diverse areas including urban problems, labor, monetary economics, international economics, comparative economic systems, and economic history.

### Department of Finance

The Department of Finance offers a variety of courses, both to students who concentrate their studies in finance and to those who desire additional knowledge in various financial areas. Such areas include financial management, security analysis and portfolio management, capital market theory, banking and institutions, and real estate.

### Department of Management

The faculty in the Department of Management brings extensive academic and practical experience to the classroom. Course offerings cover an array of management areas such as personnel, production and operations, analysis, development and design, and business policy.

### Department of Marketing

The faculty in the Department of Marketing has extensive experience in industry and government and includes individuals with interests and training in all areas of marketing. Aspects of marketing such as research, strategy and planning, and retail and sales management are covered in marketing course work.

## GRADUATION REQUIREMENTS

All students in the College of Business and Economics must fulfill the University Studies requirements as outlined in the *University Studies* section of this Bulletin.

All students in the College of Business and Economics must fulfill the College requirements, premajor requirements, and College core requirements which are listed below. Major requirements for each program in the college are also listed below.

### College Requirements

To graduate from the College of Business and Economics, a student must have a total of 120 credit hours (exclusive of lower division military science courses, physical education service courses, and performance-type courses) with a 2.0 grade-point standing. Students must earn 24 credit hours of University of Kentucky residence from the College core and departmental major with a 2.0 grade-point standing.

In addition to fulfilling the University Writing requirement, students must also complete ENG 203, Business Writing.

Students enrolled in the College of Business and Economics may complete a maximum of nine credit hours of college core and major courses through the Independent Study Program (correspondence).

### Premajor Requirements

Students must complete 23-25 credit hours taken from the following courses:

| | Hours |
|---|---|
| CS 101 Introduction to Computing I | 3 |
| ACC 201/202 Principles of Accounting | 6 |
| ECO 201/202 Principles of Economics I and II | 6 |
| STA 291 Statistical Method | 3 |
| MA 123 Elementary Calculus and Its Applications **and** | 3 |
| MA 162 Finite Mathematics and Its Applications **or** | 3 |
| MA 113 Calculus I | 4 |
| B&E 100 Introduction to Business and Economics | 1 |

### College Core

The Core, a total of 24 credit hours, consists of the following courses:

| | |
|---|---|
| MKT 300 Marketing Management | 3 |
| MGT 301 Business Management | 3 |
| MGT 340 Ethical and Regulatory Environment | 3 |
| MGT 499 Strategic Management | 3 |
| DIS 300 Quantitative Analysis in Operations Management | 3 |
| FIN 300 Corporation Finance | 3 |
| ECO 391 Economic and Business Statistics | 3 |
| Economics elective | 3 |

### Electives

Each of the degree programs affords the student considerable opportunity and freedom of choice to take elective courses. At least 12 semester hours must be upper division courses and not more than 18 semester hours can be taken in courses offered by the College of Business and Economics. (The maximum number of hours in lower division business courses acceptable is six.) Preparation for a career in business can be combined with study in some depth in agriculture, engineering, and the various fields in the arts and sciences.

### Advising

The Undergraduate Advising Center (125 B&E Building) coordinates the academic advising of business students. Generally, lower division students (freshmen and sophomores) are advised through the Center. Students who have been admitted to the upper division program (juniors & seniors) are advised by departmental faculty advisers.

General information, admission decisions, and the evaluation of transfer credit (including applicability of credit towards

degree requirements) are determined by the staff of the advising center.

## Major Requirements

### Bachelor of Science in ACCOUNTING

To graduate with a Bachelor of Science in Accounting, a student is required to have 21 or more credit hours taken from the School of Accountancy in the following courses:

| | Hours |
|---|---|
| ACC 301 Intermediate Accounting I | 3 |
| ACC 302 Intermediate Accounting II | 3 |
| ACC 324 Accounting Information Systems | 3 |
| ACC 403G Auditing | 3 |
| ACC 408G Cost Accounting | 3 |
| ACC 417G Income Taxation | 3 |
| At least three hours from the following: | |
| ACC 401G Accounting Theory | 3 |
| ACC 410G Not-For-Profit Accounting | 3 |
| ACC 416G Accounting for Business Combinations | 3 |
| ACC 518 Controllership | 3 |

### Professional Program in ACCOUNTANCY

In addition to the traditional four-year program in accounting, the School of Accountancy also offers a five-year professional program. This program requires the successful completion of 150 semester hours and leads to both the bachelor's and master's degrees. For more information about admission requirements, retention standards, and the five-year curriculum, students should contact the School of Accountancy, College of Business and Economics.

### B.B.A. with a major in DECISION SCIENCE AND INFORMATION SYSTEMS

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

| | |
|---|---|
| DIS 320 Management Information Systems | 3 |
| DIS 350 Quantitative Analysis in Management | 3 |
| DIS 406 Production and Inventory Control | 3 |
| **plus** three of the following: | |
| DIS 407 Operations Design and Planning | 3 |
| DIS 450 Decision Analysis | 3 |
| DIS 506 Productivity and Quality Control | 3 |
| DIS 520 Advanced Business Data Processing and Information | 3 |

### B.B.A. with a major in MANAGEMENT

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

| | Hours |
|---|---|
| MGT 320 Survey of Personnel and Industrial Relations | 3 |
| MGT 410 Analysis of Organizational Behavior | 3 |
| MGT Elective | 3 |
| Approved Electives | 9 |

**Approved Electives:** Students select nine hours, with adviser's consent, from the following—any upper level ACC, DIS, MGT, MKT, ECO, or FIN course consistent with student's interest; ANT 527, 533, 538; COM 419, 581; ENG 305; HIS 390, 570, 571; JAT 341, 361; PHI 335, 338; PS 433G, 487G; PSY 400, 444G; SOC 442G, 444G.

### B.B.A. with a major in MARKETING

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

| | |
|---|---|
| MKT 310 Behavioral Systems in Marketing | 3 |
| MKT 340 Introductory Marketing Research | 3 |
| MKT 450 Marketing Strategy and Planning | 3 |
| **plus** three of the following: | |
| MKT 320 Retail and Distribution Management | 3 |
| MKT 400 Promotion Management | 3 |
| MKT 410 Personal Selling and Sale Management | 3 |
| MKT 420 Contemporary Marketing Problems | 3 |
| MKT 440 Advanced Marketing Research | 3 |

### B.B.A. with a major in FINANCE

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

| | |
|---|---|
| ACC 301 Intermediate Accounting I | 3 |
| FIN 445 Capital Investment and Financing Decisions | 3 |
| FIN 450 Investment Analysis | 3 |

**plus** at least three additional finance courses at the 400 or 500 level. (Under certain circumstances, other courses may be approved with the written consent of the adviser.)

**Note:** ECO 485G, Monetary Economics, is required in partial fulfillment of the College core in this major.

### B.S.B.E. with a major in ECONOMICS

To graduate with a Bachelor of Science in Business and Economics, a student is required to have 18 credit hours as follows:

| | Hours |
|---|---|
| ECO 487G Intermediate Macroeconomic Theory | 3 |
| ECO 488G Intermediate Microeconomic Theory | 3 |
| ECO 400 Seminar in Economics (subtitle required) | 3 |
| **plus** departmental electives | 9 |

In addition, economics majors must complete COM 199 to satisfy USP requirements.

### Minor in Economics

| | Hours |
|---|---|
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| ECO 487G Intermediate Macroeconomic Theory **or** | 3 |
| ECO 488G Intermediate Microeconomic Theory | 3 |
| Three additional economics courses at the 300-level or above | 9 |

### Minor in Business

Students wishing to complete a minor in Business must complete the following:

| **Preminor Requirements** | **Hours** |
|---|---|
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| ACC 201 Principles of Accounting | 3 |
| ACC 202 Principles of Accounting | 3 |

Students must complete the preminor requirements prior to taking any course in the minor requirements.

| **Minor Requirements** | **Hours** |
|---|---|
| DIS 320 Management Information Systems | 3 |
| FIN 300 Corporate Finance | 3 |
| MGT 301 Business Management | 3 |
| MKT 300 Marketing Management | 3 |

## GRADUATE PROGRAMS

The College of Business and Economics offers the following graduate degrees through The Graduate School at the University: (1) Master of Science in Accounting, (2) Master of Business Administration, (3) Ph. D. in Business Administration, (4) Master of Science in Economics, (5) Master of Arts in Economics, and (6) Ph.D. in Economics. Additional information may be obtained from the Associate Dean for Graduate Studies, College of Business and Economics, and from *The Graduate School Bulletin*.

# COMMUNICATIONS AND INFORMATION STUDIES

*Douglas A. Boyd, Ph.D., is Dean of the College of Communications and Information Studies.*

The College of Communications and Information Studies consists of the Department of Communication and the School of Journalism and Telecommunications. The Department of Communication educates its students in interpersonal, small group, mass, and organizational communication, and communication theory and research. Graduates pursue a variety of career paths in areas such as public relations, personnel, education, media, and government. The journalism area within the School of Journalism and Telecommunications educates its students for professional careers in the media as writers or editors, or in public relations, advertising or management. The telecommunications area within the School of Journalism and Telecommunications educates its students in telecommunications technology, management, programming, research, audio-video production, and the societal consequences of electronic media.

### Accreditation

Majors in the School of Journalism and Telecommunications have national accreditation from the American Council on Education in Journalism and Mass Communications (AEJMC).

### Undergraduate Programs in Communications and Information Studies

The University of Kentucky grants the following degrees in the College of Communications and Information Studies:

- Bachelor of Arts
- Bachelor of Science

Students pursuing either the Bachelor of Arts or the Bachelor of Science select from these majors: advertising, communication, journalism, and telecommunications. Both departments offer minors.

### Scholarships and Financial Aid

The College of Communications and Information Studies has several opportunities for students to obtain scholarship funding, but students should note that most are for sophomores, juniors and seniors. The School of Journalism and Telecommunications grants nearly $6,000 in aid from various scholarship funds. The Department of Communication also has funding available for students. Generally, the deadline for scholarship applications is early in the spring semester to award funding for the following academic year. For specific information on scholarships, contact the department office, or the Office of Undergraduate Studies in 105 Grehan Building.

## ADMISSION POLICY

Admission to the University is sufficient for admission to the College of Communications and Information Studies as a **premajor** for students who have completed less than 45 semester hours. **An application must be filed with the college in order for a student to be considered for admission as a premajor or major.** However, admission as a premajor does not guarantee admission as a **major** in one of the degree programs in the College of Communications and Information Studies. In general, admission as a major depends upon the qualifications and preparation of the applicant, as well as the availability of resources for maintaining quality instruction.

### Admission to Degree Programs

In order to be admitted to any of the four undergraduate majors (advertising, communication, journalism, and telecommunications) offered by the College of Communications and Information Studies, an applicant must fulfill the following requirements:

1. Enrollment in the University of Kentucky (Students are considered for acceptance by the college only after acceptance by the University.);
2. Completion of 45 semester hours of course work;
3. Minimum of 2.6 cumulative grade-point average;
4. Completion of premajor requirements of the program to which application is made;
5. Completion of the University Studies Program requirements in Basic Skills (I), at least **A** and **B** under Inference and Communicative Skills (II), and at least 12 credits toward completion of the Disciplinary Requirements (III) including six credits in Social Sciences;
6. Submission of an application form.

Students meeting these requirements will be designated as **majors** or as students with **upper-division standing** in the program to which admission is granted. Any student not meeting one or more of these requirements may be granted premajor status.

**APPLICATION DEADLINES FOR COMMUNICATIONS AND INFORMATION STUDIES**

**All Applicants, Premajor and Major** (Students who have completed 45 semester hours of course work):

| | Fall | Spring | Summer |
|---|---|---|---|
| Application, Transcripts, Courses in Progress | June 1 | Oct. 15 | April 1 |

In the admission considerations, when personal, academic, professional, or intellectual circumstances tend to discount lower academic scores, admission may be granted if there is other persuasive evidence of both the capability and motivation to undertake successfully a program in the College of Communications and Information Studies.

Annually, the College of Communications and Information Studies faculty will review the minimum standards required for admission to the college. Any change in requirements will be implemented at the beginning of the academic year (fall semester) and will be in effect for the entire academic year. If the standards are to be changed, the Dean of the College of Communications and Information Studies will submit the proposed change by February 1 to the University Senate Council for approval, with prior circulation to the University deans and directors.

### Admissions Process

**Application for admission to the College of Communications and Information Studies, whether premajor or major, must be received no later than April 1 for the summer session, June 1 for the fall semester, and October 15 for the spring semester.** Normally such application will be made prior to the satisfactory completion of 60 semester hours of college-level courses. Subsequent transfer between majors will be permitted only upon application to and acceptance by the academic unit offering that major.

Each applicant bears the responsibility to see that the application contains all the requested materials.

**Automatic acceptance:** Assuming all else is in order, applicants with a 2.6 or above undergraduate grade-point average will be accepted. Once accepted,

each student will be assigned a major adviser by the appropriate department office.

**Admission based upon departmental review:** Students who do not meet one or more of the requirements for admission, but who feel that this is due to extenuating personal, academic, professional, or intellectual circumstances, must describe these circumstances in detail in a separate letter of appeal. These circumstances will be considered by the Admissions Committee of the appropriate program. The applicant will be informed in writing of the committee's decision, which also will be forwarded to the college's Office of Undergraduate Studies.

### Enrollment in Upper Division Courses

Enrollment in College of Communications and Information Studies courses numbered 300-599 will be limited in order of priority to:

1. majors and minors in College of Communications and Information Studies degree programs;
2. non-College of Communications and Information Studies students who are registered for specific programs requiring College of Communications and Information Studies courses;
3. other students or categories of students with the express permission of the department offering the course (departments may choose to declare certain courses as open enrollment courses).

## GRADUATION REQUIREMENTS

To earn either the Bachelor of Arts or the Bachelor of Science degree in the College of Communications and Information Studies, each student must (1) complete 120 hours of course work (excluding courses lower than the 100 level, courses with an **R** designation, physical education service courses, and/or EXP 396 credits) with a grade-point average of at least 2.0 and (2) complete at least 42 hours in upper division courses (300 or above). No more than 60 hours may be taken within the college.

Other requirements include University Studies, Basic Skills, premajor requirements, field of concentration (24 hours of major work and 15 hours of cognate courses earned outside the college as defined by the units), and a minimum of six hours of free electives.

### Bachelor of Arts Degree Requirements

Students who pursue the B.A. within the College of Communications and Information Studies must fulfill the following requirements.

**University Studies:** Students must complete all of the areas of University Studies: Basic Skills (math and foreign language), Inference and Communication Skills (calculus or logic plus statistics, ENG 101/102 or ENG 105, and oral communication skills), Disciplinary Skills (six credits each in natural sciences, humanities, and social sciences), Cross Disciplinary work (six credits), and Cross-Cultural (three credits).

#### College Requirements

**1. Language.** Complete one of the following sequences:

**Option A:** Successful completion of the fourth college semester of one foreign language. (Note: This may be accomplished by scoring at this level on a placement test for previous work in the foreign language.)

**Option B:** Complete the University Studies Requirement in a foreign language and a set of two courses dealing with the nature and structure of language, language behavior, or comparative languages. This set shall be comprised of one course from Group I below, and one course from Group II. (Courses counted as meeting this option may not be counted in the major or field of concentration.)

**Group I:** ANT 215, LIN/ENG 211, ENG 414G, or COM 350.

**Group II:** ANT/ENG/LIN 515, ANT/ENG/LIN 516, ANT 518, ANT/LIN 519, ENG 418, ENG 510, ENG 512, or PSY 529.

**2. Statistics.** Complete one course in statistics (e.g., STA 200, 291, 370)

#### Major Requirements

Students must complete the departmental requirements for one of the four majors (advertising, communication, journalism, and telecommunications).

### Bachelor of Science Degree Requirements

Students who pursue the B.S. within the College of Communications and Information Studies must fulfill the following requirements:

**University Studies:** Students must complete all of the areas of University studies: Basic Skills (math and foreign language), Inference and Communication Skills (Calculus, ENG 101 and 102 or ENG 105, and oral communication skills), Disciplinary Skills (six credits each in natural sciences, humanities, and social sciences), Cross-Disciplinary work (six credits), and Cross-Cultural (three credits).

#### College B.S. Requirements

**1. Mathematics, statistics and computer science:** Complete nine credits in mathematics, statistics and/or computer sciences beyond the University Studies requirements.

**2. Science Courses.** Complete a minimum of 60 hours of science courses, with not more than 12 hours within the College of Communications and Information Studies. These courses must be approved by an adviser in the College of Communications and Information Studies and may be from the areas of mathematics, statistics, computer science, physical sciences, biological sciences, social and behavioral sciences, as well as from appropriate professional fields.

### Academic Advising

Premajor (freshman and sophomore) advising in the College of Communications and Information Studies is under the jurisdiction of the Office of Undergraduate Studies, 105 Grehan Building. Premajor advisers are Shirley Rose, Director of Undergraduate Studies, and John Clark, Assistant Director of Undergraduate Studies. Either can be reached at (606) 257-4839.

During advance registration periods, the college will advise premajors through collective advising sessions for each academic unit. Individual advising will be available for those with special problems. Between advance registration periods, including registration at the beginning of each term, one faculty or staff member from each academic unit will be available to advise premajors.

When students are admitted to the upper-division of the college, they are assigned a faculty adviser from their major program.

## B.S. or B.A. with a major in COMMUNICATION

The major in communication provides students with conceptual and practical skills necessary to construct and share effective messages across individuals, audiences, contexts, and cultures. Graduates develop strong oral and written communication skills as well as the analytical skills of a critical consumer of communication. Majors may focus upper-division course work on communication in interpersonal, organizational, international/intercultural or mass media contexts.

The major offers the flexibility to integrate communication courses with those in related disciplines to prepare for careers in such areas as: corporate communications, public relations, the health industry, personnel, social and human services, high technology industries, education, tourism, government/international relations, and post-graduate work in communication and law among others.

Communication majors are encouraged to participate in educational activities beyond regular course offerings. The department has an excellent and large internship program which offers the opportunity for work with employers in corporate, government, and public service agencies. In addition, students may elect to do independent study work with individual faculty on special topics or projects. All majors are encouraged to participate in a variety of student organizations providing extracurricular activities designed to enhance the academic experience and career opportunities, including a Department Honors Society for those who qualify.

### Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes the following:

| Premajor Requirements | Hours |
|---|---|
| COM 101 Introduction to Communications | 3 |
| COM 181 Basic Public Speaking **or** | |
| COM 287 Persuasive Speaking | 3 |
| COM 252 Introduction to Interpersonal Communication | 3 |
| JAT 204 Writing for the Mass Media **or** | |
| ENG 205 Advanced Composition **or** | |
| ENG 305 Advanced Writing | 3 |

**Major Requirements**

**Required**

| | |
|---|---|
| COM 351 Introduction to Communication Theory | 3 |
| COM 365 Introduction to Communication Research Methods | 3 |

**Electives**

Six credits from the following:

| | |
|---|---|
| COM 249 Mass Media and Mass Culture | 3 |
| COM 281 Communication in Small Groups | 3 |
| COM 319 World Media Systems | 3 |
| COM 325 Business and Industrial Communication | 3 |

Fifteen additional credits of COM courses at the 300-level or above, of which at least nine credits must be at the 400- and/or 500-level.

**Cognate Area(s)**

Students must complete fifteen hours in courses in one or more related areas (not COM courses) at the 300-level or above, as approved by the student's adviser.

### Minor in Communication

Any student wishing to minor in communication must meet college selective admission requirements (45 credits completed, 30 credits in USP courses, COM 101 and have a 2.6 cumulative grade-point average). The student must file an application for the minor in the Department of Communication Office and have approval from the department chair for COM courses selected to complete the minor.

1. COM 101 Introduction to Communications ..... 3
2. Three courses (nine hours) from the following courses, **beyond** course work for USP Oral Communication Skills Requirement:

| | |
|---|---|
| COM 249 Mass Media and Mass Culture | 3 |
| COM 252 Introduction to Interpersonal Communication | 3 |
| COM 281 Communication in Small Groups | 3 |
| COM 283 Argumentation and Debate | 3 |
| COM 287 Persuasive Speaking | 3 |
| COM 319 World Media Systems | 3 |
| COM 325 Business and Industrial Communication | 3 |
| COM 350 Language and Communication | 3 |

3. Three courses (nine hours) from COM courses at the 400-level or above.

## B.S. or B.A. with a major in JOURNALISM

The School of Journalism and Telecommunications provides undergraduate professional education within the context of a liberal arts program. Founded in 1914, the school was a part of the College of Arts and Sciences until July 1976, when it became part of the new College of Communications.

The General Editorial and Advertising sequences in the school have full national accreditation by the American Council on Education in Journalism and Mass Communications. Only about 95 schools and departments of journalism in the United States have accredited programs.

Students are encouraged to work on the *Kentucky Kernel*, the independent campus daily newspaper; *The Kentuckian*, the student yearbook; WRFL, the student-run radio station; and WUKY, the University's public radio station. The school assists students in obtaining internships with newspapers, broadcasting stations, magazines, and advertising, and public relations agencies and helps in job placement in these fields after graduation.

### Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes one of the two following sequences:

### General Editorial Sequence

| Premajor Requirements | Hours |
|---|---|
| JAT 101 Introduction to Communication Media | 3 |
| JAT 204 Writing for the Mass Media | 3 |

**Major Requirements**

| | |
|---|---|
| JAT 301 News Reporting | 3 |
| JAT 303 Copyreading and Editing | 3 |
| JAT 531 Law of the Press | 3 |

**Journalism Options**

One course from each of the following pairs:

| | |
|---|---|
| 1. JAT 439 Reporting Public Affairs | 3 |
| JAT 499 Advanced Writing for the Mass Media | 3 |
| 2. JAT 535 History of Journalism | 3 |
| COM 453 Mass Communication and Social Issues | 3 |

**Communication Electives**

Nine hours of course work in journalism, telecommunications, or communications, at least six to be in journalism.

**Field of Concentration**

Breadth will be insured in students' programs by at least 16-18 credit hours of upper division liberal arts courses such as economics, philosophy, history, languages, literature, political science, psychology, sociology, or the sciences. Within those 16-18 hours, at least 15 hours should involve concentrated study in one field. This does not mean that all such courses must be in a single department, but they should be united under a topic heading such as "international relations," "American government," or "political behavior."

**Note:** Of a student's total course work for a bachelor's degree, 90 of the 120 hours required for graduation must be in courses other than journalism or mass communications. (Accreditation standards require at least 65 semester hours in basic liberal arts and sciences.) Up to two of the following School of Journalism and Telecommunications courses may be counted as part of the 90 semester hours outside the major but not as part of the 65 semester hours in basic liberal arts and sciences:

JAT 101, 201, 319, 420, 505, 520, 532, 535, 545.

### Advertising Sequence

| Premajor Requirements | Hours |
|---|---|
| JAT 101 Introduction to Communication Media | 3 |
| JAT 204 Writing for the Mass Media | 3 |

**Major Requirements**

| | |
|---|---|
| JAT 361 Principles of Advertising | 3 |
| JAT 461 Advertising Media Planning | 3 |
| JAT 471 Advertising Research | 3 |
| JAT 481 Advertising Creative Strategy and Execution I | 3 |

**Capstone Requirement**

| | |
|---|---|
| JAT 491 Advertising Campaigns | 3 |

**Major Electives**

Nine hours are to be taken from the following courses:

**Writing and Editing**

| | |
|---|---|
| JAT 301 News Reporting | 3 |
| JAT 303 Copyreading and Editing | 3 |
| JAT 488 Advertising Creative Strategy and Execution II | 3 |
| JAT 499 Advanced Writing for the Mass Media | 3 |

**Broadcasting and Telecommunications**

| | |
|---|---|
| JAT 312 Television Production I | 3 |

**Public Relations and Communications**

| | |
|---|---|
| JAT 341 Public Relations | 3 |
| JAT 445 Case Studies in Public Relations | 3 |
| COM 325 Business and Industrial Communication | 3 |
| COM 482 Persuasion | 3 |

**Legal and Administrative**

| | |
|---|---|
| JAT 531 Law of the Press | 3 |
| JAT 543 Advertising Regulation | 3 |

**Photography**

| | |
|---|---|
| JAT 387 Introduction to Press Photography | 3 |
| JAT 487 Photojournalism | 3 |

**Other Special Courses**

| | |
|---|---|
| JAT 395 Independent Study | 1-3 |
| JAT 399 Internship: (Subtitle Required) | 1-3 |
| JAT 497 Special Topics in Journalism | 1-3 |

**Field of Concentration**

In addition to MKT 300 (which is required) advertising majors are required to complete 15 additional credit hours of upper division courses outside the College of Communications and Information Studies. In consultation with his or her adviser, each student should design a field of concentration which helps develop an area of in-depth, specialized knowledge.

This specialized knowledge should complement each student's career goals fully. The school and the faculty will help identify a range of career areas–from creative positions to account management. For each of these career areas, a select group of courses will be recommended for their value in furthering career interests.

Many of these courses are from the disciplines of psychology, sociology, English, and philosophy. Selected marketing courses are also recommended; students should be aware that entrance into these courses is highly competitive and may preclude being able to include a specific marketing course in the field of concentration designed.

**Electives**

**Note:** Of a student's total course work for a bachelor's degree, 90 of the 120 hours required for graduation must be in courses other than journalism or mass communications. (Accreditation standards require at least 65 semester hours in basic liberal arts and sciences.) Up to two of the following School of Journalism and Telecommunications courses may be counted

as part of the 90 semester hours outside the major but not as part of the 65 semester hours in basic liberal arts and sciences:
JAT 101, 201, 319, 420, 505, 520, 532, 535, 545.

## B.S. or B.A. with a major in TELECOMMUNICATIONS

Telecommunications is the study of societal effects, public and private policy, and managerial processes of information produced and distributed by electronic technology. The School of Journalism and Telecommunications seeks to prepare students with the professional and critical thinking skills necessary for placement in a rapidly changing field.

The Telecommunications program offers course work in three areas: programming and research, including theoretical and social evaluation of media uses and effects; communications technology; and policy and regulation of telecommunications. All students receive a thorough introduction to major concepts of telecommunications through required course work in those three areas.

Media professionals from the region teach special topics courses on a regular basis. Telecommunications majors can also receive instruction in audio and video production and performance.

Internships are available to qualified students who are interested in gaining experience with commercial and public broadcasting stations, advertising agencies, cable systems, public agencies, and other telecommunications firms.

### Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes the following:

**Premajor Requirements** **Hours**
JAT 101 Introduction to Communication Media ..... 3
JAT 201 Telecommunications Technologies and Society ..... 3

**Major Requirements**
JAT 300 Telecommunications Research Methods ..... 3
JAT 305 Telecommunications Program Analysis ..... 3
JAT 310 Telecommunications Regulations ..... 3

**plus** 18 hours from the following courses:
JAT 312 Television Production I ..... 3
JAT 319 World Media Systems ..... 3
JAT 395 Independent Study ..... 1-3
JAT 399 Internship: (Subtitle Required)* ..... 3
JAT 412 Television Production II ..... 3
JAT 413 Audio Production ..... 3
JAT 414 Telecommunications Performance ..... 3
JAT 420 Telecommunications Program Criticism ..... 3
JAT 504 Telecommunications Management ..... 3
JAT 505 Advanced Topics in Telecommunications Policy ..... 3
JAT 508 Advanced Research Methods ..... 3
JAT 510 Advertising and Electronic Media ..... 3
JAT 511 Telecommunications Instructional Systems ..... 3
JAT 513 Social Effects of Telecommunications ..... 3
JAT 520 Economics of Information ..... 3
JAT 530 Proseminar in Telecommunications ..... 3
JAT 545 Entertainment Functions of the Mass Media ..... 3
JAT 599 Telecommunications Topical Seminar ..... 3

*While JAT 399 may be repeated once for credit, only three hours may be counted toward fulfillment of departmental requirements.

No more than nine hours of production-related courses (JAT 312, 412, 413, 414, and specified sections of 599) may be included in the 33 hours for a B.A. or B.S. in telecommunications.

**Cognate Area:** All new majors must fulfill the field of concentration or cognate area requirement by taking a minimum of 15 hours at or above the 300 level in courses related to their telecommunications interest.

### Minor in Telecommunications

Any student wishing to minor in telecommunications should file an application with the School of Journalism and Telecommunications after meeting the following requirements:

Complete either JAT 101 or JAT 201

Complete 45 hours of university course work with a cumulative grade-point average of 2.6

Students cannot register for upper-level telecommunications courses until they have met the above requirements and have been accepted into the telecommunications minor program. After a student has been accepted as a minor, he or she will be assigned a faculty adviser.

The minor in telecommunications requires a minimum of 21 hours to include the following:

1. JAT 101 Introduction to Communication Media ..... 3
   JAT 201 Telecommunications Technologies and Society ..... 3
2. Complete **two** of the following courses:
   JAT 300 Telecommunications Research Methods ..... 3
   JAT 305 Telecommunications Program Analysis ..... 3
   JAT 310 Telecommunications Regulations ..... 3
3. Nine additional hours of elective course work (which could include additional core course work.)

Only one enrollment in JAT 399, Internship: (Subtitle Required), will be permitted.

Students may take only six hours from the following courses: JAT 312, 399, 412, 413, 414.

**Note:** Students should recognize that most upper-division telecommunications courses have specific prerequisite courses that must be taken and plan their programs accordingly.

## M.S. in LIBRARY SCIENCE

The School of Library and Information Science began in 1933 as the Department of Library Science within the College of Arts and Sciences. Sixty years later, in 1993, the College of Library and Information Science merged with the College of Communications to form the College of Communications and Information Studies. The new college consists of a School of Library and Information Science, a School of Journalism and Telecommunications, and a Department of Communication. The school offers one of 58 master's programs in library and information science in the United States and Canada that are accredited by the American Library Association.

The School of Library and Information Science provides students with the basic knowledge and skills required to function effectively in beginning professional positions in various types of libraries and information-providing agencies. It contributes to the advancement of both the theory and practice of librarianship through systematic and continuing research and publication and provides continuing public service to individuals, libraries, professional organizations and related institutions to the end of promoting effective and efficient information services.

The School of Library and Information Science maintains flexibility and openness to change through the participation of faculty, students, and administration in the decision-making process. The student body, numbering about 250 graduate students, each year elects a student committee to represent them in all deliberations of the School of Library and Information Science. Students sit on committees and share significantly in the development of the college. The student committee participates in orientation programs, publishes a newsletter, and sponsors social activities throughout the year. The diversity of the students, in terms of geography and interests and backgrounds, helps to create an atmosphere in which change and improvement in the program can take place.

The libraries of the University, M. I. King and the branch libraries, constitute the major "laboratory" facility for library and information science students. They are supplemented by other libraries in the area including those at the Lexington Theological Seminary, the Veterans Administration Medical Center, the Lexington Public Library, several nearby public regional libraries and the State Department for Libraries and Archives in Frankfort.

### Accreditation

The master's program in library and information science is accredited by the American Library Association.

### Graduate Program in Library and Information Science

The University of Kentucky grants the following degree in the School of Library and Information Science:

- Master of Science in Library Science

## ADMISSION REQUIREMENTS AND PROCEDURES FOR GRADUATE STUDY

The School of Library and Information Science offers graduate degrees only. For complete information on the M.A. and the M.S.L.S. degree programs and admissions procedures, students should consult *The Graduate School Bulletin* and the School of Library and Information Science Bulletin.

### Admission

The admissions philosophy of the school is to admit students who are capable of satisfactory academic performance and who show promise of being able to function as competent and effective librarians and information managers. A basic requirement for admission is an undergraduate degree in any discipline (from an accredited institution) with a grade-point average of at least 2.75 on a 4.00 scale. In addition the applicant should present Graduate Record Examination scores on the aptitude sections (verbal and quantitative) with a combined total of 900.

While these admission standards are important, the school does try to remain flexible to account for individual developmental differences and strengths.

There are no specific library science prerequisites for admission into the School of Library and Information Science. Students are urged not to take a minor in library science as undergraduates but to concentrate on other subject area majors and minors and obtain a broad liberal arts background. Electives in computer science are often very helpful. Those students with many undergraduate library science courses do not repeat similar courses in the graduate program and are usually asked to take graduate courses in non-library science areas to strengthen backgrounds in subject areas. Such courses are, however, counted as part of the 36-hour minimum requirement for graduation.

Application must be made both to the School of Library and Information Science and The Graduate School. Forms for both the school and The Graduate School may be obtained from the Assistant Director, School of Library and Information Science. The School of Library and Information Science form should be returned directly to the school. The Graduate School application and two copies of all official transcripts must be returned to The Graduate School no later than 30 days prior to the opening of the term in which the student wishes to enroll. Early application is, however, encouraged to allow for any delays. Students may enter the program in the summer, fall, or spring.

Previous students must apply for readmission if they were not enrolled during the semester prior to that for which admittance is sought.

### Financial Aid

Financial aid and scholarship information specific to library and information science is limited to graduate students and is too detailed and changes too often to warrant inclusion in this Bulletin.

### Advising

Upon admission to the master's program, students are assigned a personal adviser. Adviser assignments are based, when possible, on student interest and preference.

### University of Kentucky Undergraduates

The School of Library and Information Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates (juniors or seniors) at the University of Kentucky may take courses at the 500 level as a general minor or as meeting the requirements for certification in Kentucky as a school librarian. Those students who are not working toward certification are encouraged not to take more than six credit hours of the 500-level core courses in library and information science if they plan to enter the School of Library and Information Science.

## GRADUATE PROGRAMS

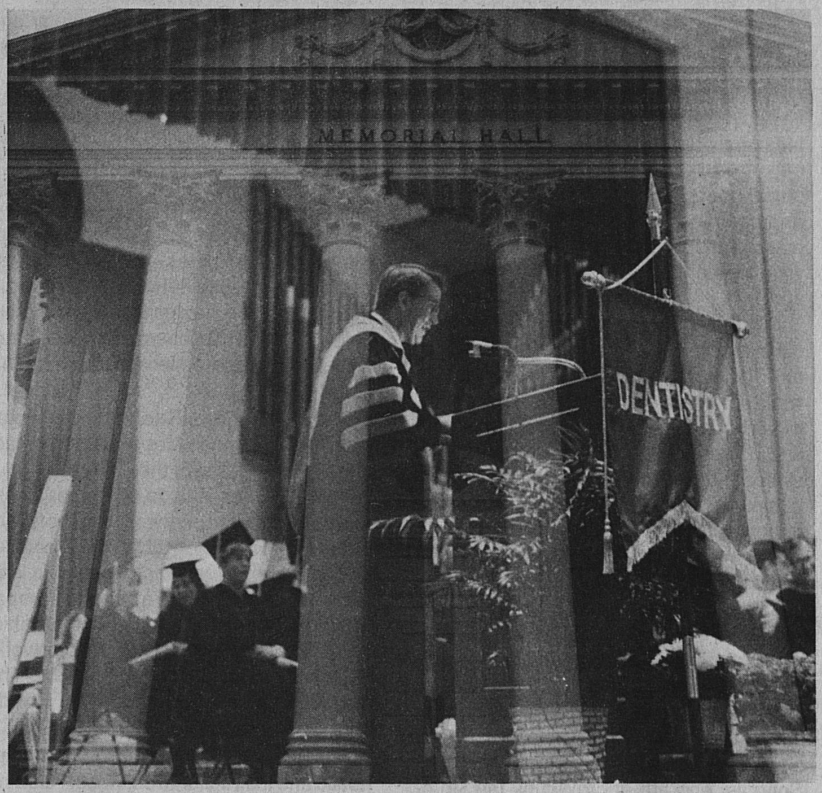
The College of Communications and Information Studies offers the following graduate degrees: (1) Master of Arts in Communication, (2) Ph.D. in Communication, (3) Master of Science in Library Science, and (4) Master of Arts (Library Science. Additional information may be obtained from the Director of Graduate Studies for the College of Communications and Information Studies and from *The Graduate School Bulletin.*

# DENTISTRY

*David A. Nash, D.M.D, Ed. D., is Dean of the College of Dentistry.*

The College of Dentistry offers a professional program leading to the Doctor of Dental Medicine degree and post-doctoral programs in several specialties of dentistry. The major goal of the College of Dentistry is the development of biologically oriented, clinically capable, and socially responsible practitioners who are sensitive to the significance of their contribution to the oral health of their patients. The College is fully accredited by the Commission on Dental Accreditation of the American Dental Association.

For further information on the D.M.D. program and the post-doctoral programs, students should refer to the *College of Dentistry Bulletin.*




### Admission—Doctor of Dental Medicine

The College of Dentistry seeks to enroll students whose backgrounds, personalities, and motivations indicate that they will make capable future practitioners. The college gives preference to qualified applicants who are residents of Kentucky. However, highly qualified out-of-state applicants are considered each year and such candidates are encouraged to apply.

### Recommended Predental Preparation

The University of Kentucky College of Dentistry strongly recommends that applicants gain a broad liberal arts education with a strong introduction to the sciences. Suggestions for recommended course work may be obtained from the Office of Academic and Student Affairs in the College of Dentistry. Gaining admission is a competitive process and possessing a baccalaureate degree is an advantage.

Prospective dental students should contact the Office of Academic and Student Affairs of the College of Dentistry at an early stage in their undergraduate careers for guidance. The College of Dentistry will work with students to afford them the best opportunity for gaining admission.

### Application

The University of Kentucky College of Dentistry is a participant in the American Association of Dental Schools Application Service (AADSAS), a centralized application service. Application forms may be obtained from predental advisers, the College of Dentistry, or by writing to:

**AADSAS**
**1625 Massachusetts Ave. NW**
**Suite 101**
**Washington, D.C. 20036**

Application for admission to the College of Dentistry should be submitted to AADSAS between June 1 and April 1 preceding the fall in which admission is desired. Candidates are advised to complete their applications at the earliest possible date. Applicants are accepted beginning December 1 of each year, and those applying near the application deadline are at a disadvantage due to the time required to fully process an application.

One official transcript of record must be requested from each college or university attended. Transfer credits entered on a transcript from a previous institution attended are not sufficient. The transcript of record must come from the college in which the credits were earned.

### Letters of Recommendation

Applicants are required to submit three letters of recommendation. Letters should be requested from individuals who know the applicant well and can provide meaningful comments about the applicant's academic potential, sense of responsibility, social sensitivity, community orientation, and awareness of social problems. It is suggested that two of the three letters be from persons in the applicant's academic background.

### Dental Admission Test

The Dental Admission Test was developed and adopted by the Council on Dental Education of the American Dental Association as a means of determining an individual's potential for dentistry. It is a standardized examination required by all dental schools and administered and graded by the Division of Educational Measurements of the American Dental Association. This examination is given twice a year (spring and fall) at a number of locations throughout the nation. The applicant should complete the test during the junior year.

Any questions regarding admission or arranging a visit to the college should be directed to:

**Office of Academic and Student Affairs**
**College of Dentistry**
**D-155 Chandler Medical Center**
**University of Kentucky**
**Lexington, KY 40536-0084**
**(606) 323-6071**

# EDUCATION

*Shirley Raines, Ph.D., is Dean of the College of Education.*

The College of Education designs, develops, and implements programs for professional preparation of personnel in educational roles in schools, colleges, and social agencies. The college administers and coordinates the University's teacher education programs and serves as liaison with the Kentucky Department of Education.

Instruction focuses on the professional dimensions of teaching, administration, and the work of educational specialists, while the college's research and development contribute to education in general and in Kentucky. The college assists school systems and social agencies in program planning, evaluation, and the continuing education of staff. The college also offers programs that do not lead to school certification.

### Accreditation

All programs for the preparation of teachers and school service personnel are accredited by the National Council for Accreditation of Teacher Education and the Southern Association of Colleges and Schools, and are approved by the Commonwealth of Kentucky.

### Undergraduate Programs in Education

The University of Kentucky grants the following degrees in the College of Education:

- Bachelor of Arts in Education
- Bachelor of Science in Education

Students pursuing the Bachelor of Arts in Education may select from these majors: art education (see *Fine Arts* section), elementary education, health promotion, middle school education, kinesiology (physical education), secondary education or special education. Students selecting secondary education may specialize in one of the following: dramatics and speech, English, foreign languages, mathematics, sciences, or social studies. Students selecting special education may specialize in either learning and behavior disorders or moderate/severe disabilities.

Students selecting the Bachelor of Sciences in Education major in moderate/severe disabilities.

### Graduate Programs in Education

- Master of Arts in Education
- Master of Science (Kinesiology and Health Promotion)
- Master of Science in Education
- Specialist in Education
- Doctor of Education (Ed.D.)
- Doctor of Philosophy (Ph.D.)

### Special Facilities and Services

The **Education Library** contains more than 80,000 volumes, over 300 current periodical subscriptions, and some 400,000 microfiche, including a complete collection of ERIC documents. The library also has a large collection of children's literature.

The **Instructional Technology Center** provides media services to students, faculty, and programs of the College of Education. Services include computer classrooms, computer hardware and software support, presentation technology, circulation of nonprint teaching materials and audiovisual equipment; a materials preparation laboratory; graphic, photographic, and recorded media; and facilities for working with films and electronic media. The staff is available to assist with a wide range of technology-related activities.

The **Reading Center** provides diagnostic and instructional services. Reading and language arts materials, children's literature, professional texts and journals, and other reference materials are available. Tutors are recommended, based on availability.

The **Educational Assessment Clinic**, operated by the Department of Special Education and Rehabilitation Counseling, is located in 224 Taylor Education Building. The clinic provides diagnostic and prescriptive services to children and young adults with learning difficulties in need of appropriate technology services and/or vocational evaluation. Services are available for University students and all Kentucky residents. The clinic serves as a training and practicum site for special education majors. University students are afforded opportunities to assess and design remedial strategies for learning and education problems, as well as appropriate technology needs of children and youth with disabilities.

The **Center for Professional Development** works with public school systems and agencies outside the University to provide in-service programming, field service, and research expertise.

The **Institute on Education Reform** coordinates the efforts of the College of Education to implement the Kentucky Education Reform Act (KERA). The Institute has three major goals: to stimulate research related to the implementation and effectiveness of KERA initiatives; to serve as a clearinghouse for information related to education reform in Kentucky; to provide staff development for teachers and administrators; and to redesign College of Education professional preparation programs to prepare graduates for the restructured schools of Kentucky.

The **Kentucky Council on Economic Education** works with classroom teachers to identify graduate courses, inservice programming, and seminars to help teachers integrate economic concepts into the school curriculum.

The **Office of Educational Research and Development** provides technical support to faculty and staff involved in research and proposal development, particularly as these enhance the College's participation in the Kentucky Education Reform Act (KERA), assists in follow-up studies of graduates, assists with internal studies and evaluations of programs, and coordinates College of Education student evaluations of teaching.

The **Policy Analysis Center for Kentucky Education** (PACKE) conducts research on policy issues related to education and evaluates implemented policies and programs.

The **Office of Higher Education Research and Development** conducts research on questions on higher education that are important to Kentucky. Research results are shared with the Council on Higher Education and other institutions in Kentucky.

The **Biodynamics Laboratory** is a multidisciplinary facility housed in the Center for Biomedical Engineering. Faculty and students from Kinesiology and Health Promotion, Biomedical Engineering, Sports Medicine, and other related fields use high speed videography, electromyography, and force measures to understand human movement. This facility also serves as a clinical gait analysis facility in cooperation with the University of Kentucky Hospital.

### General Information

Students who wish to be recommended for Kentucky school certificates must meet the requirements of the College of Education and of the college in which they are enrolled. Some programs require the stu-

dent to be enrolled in the College of Education.

Students desiring to be recommended for initial certificates in a major must be admitted to a Teacher Education Program before they can take upper division courses in a professional education sequence. The number of students admitted to the teacher education program each year depends upon the availability of resources for maintaining quality instruction.

Admission to a teacher education program is highly selective and may be competitive. Meeting minimum requirements for application does not guarantee admission.

Students will be recommended for degrees by the College of Education only upon completion of approved degree programs. Students who have not been admitted to a teacher education program will not be permitted to complete courses requiring Teacher Education Program admittance.

## ADMISSION TO TEACHER EDUCATION PROGRAM

A student must apply, be admitted to, and be retained in a Teacher Education Program, and complete a state approved degree program in order to receive an education certificate. Applications are accepted for review by the Program Faculty from students who have completed, or will complete during the semester in which they apply, 60 semester hours, including EDP 202 with a grade of **C** or better. Program Faculty consider applications and interviews, which are required of all students admitted, and recommend to the Dean of the College of Education that an applicant be accepted, accepted provisionally, or denied. A student's education adviser, academic adviser, and the Director of Admissions also may make recommendations concerning the disposition of an application. Information considered during the review process includes but is not limited to an applicant's

1. academic record. A minimum overall grade-point average of 2.5 is required for application for admission.
2. performance on required tests of skills in written and oral communication, reading, and mathematics. A demonstrated skill level equal to or greater than the minimum acceptable level mandated by the Kentucky Department of Education is required for admission.
3. record of preprofessional curricula experiences.
4. commitment to the profession based on a realistic understanding of employment conditions and demands.
5. proficiency in human relations skills.
6. recommendations from at least three persons familiar with the student's qualifications.
7. willingness to help provide an adequate education for children and youth.
8. demonstration of competencies relevant to content major and minor (test, portfolio, oral skills in languages, performance skills in music, laboratory skills in science, etc.)

Subsequent formal admission to student teaching is through a process separate from admission to the Teacher Education Program. Admission to the Teacher Education Program is not a guarantee of admission to student teaching and subsequent certification.

### Retention Policy

The teacher candidate's progress in a Teacher Education Program is continuously monitored. A student may be placed on probationary status or suspended from the program for failure to make satisfactory progress. Conditions resulting in probation or suspension include the following:

1. The student fails to earn a grade of **C** or better in a professional education class.
2. The student fails to maintain an overall grade-point average of 2.50, and a 2.50 in each of the following: major, areas of specialization, professional education, minor and/or support area(s).
3. The student fails to demonstrate the ability or potential to work successfully in a classroom or other educational setting.

A student placed on probation will be given specified criteria for improvement. If the student fails to meet the specified criteria within the time specified, he or she will be suspended from the program. If the Program Faculty deems it necessary to suspend the student from the Teacher Education Program, the student may request a hearing before the Program Faculty. If the student wishes to appeal the decision of the Program Faculty, he or she may request a hearing before the College of Education Undergraduate Admissions and Standards Committee.

Questions regarding admission to and continuation in the Teacher Education Program should be directed to:

**Director of Admissions**
**Teacher Education and Certification**
**166 Taylor Education Building**
**University of Kentucky**
**Lexington, KY 40506-0001**

### Financial Aid/Scholarships

Application forms are available in 166 Taylor Education Building during January and February. March 1 is the deadline for receipt of application forms. Four scholarships are available to high school seniors; all four are based on academic performance and financial need. College of Education alumni scholarships provide small grants to students, based on academic performance and need, if these students have been admitted to a teacher education program. The departments of Kinesiology and Health Promotion and Special Education and Rehabilitation Counseling award additional scholarships. Kentucky residents admitted to teacher education programs may apply for funds from the Kentucky Higher Education Assistance Authority, 1020 US 127 South, Frankfort, KY, 40601. KHEAA loans are based on academic standing, availability of funds, and program area of the student.

### Student Teaching

A student may enroll in student teaching in one of the prescribed curricula of the College of Education provided he or she has:

1. taken one semester of residence course work;
2. been admitted to and retained in the appropriate professional Teacher Education Program;
3. maintained a grade-point standing of at least 2.5 in (a) the area of concentration, major, minor and/or support areas, (b) professional education courses, and (c) entire undergraduate program;
4. completed all professional education courses except student teaching;
5. completed a minimum of 75 percent of the required hours in the area of concentration or the major. All of the minor must be completed if student teaching is to be done in that field;
6. applied and been accepted for student teaching two semesters prior to the one in which he or she plans to do student teaching;
7. been accepted by the school system and supervising teacher where he or she plans to do student teaching;
8. scheduled no more than 3 hours of college work to be carried during student teaching with no college classes scheduled to interfere with the teaching assignment;
9. presented evidence of having had a specified physical examination.

An additional factor considered in the review of applications for student teaching is the availability of acceptable school classroom placement opportunities. **Students must be prepared to accept student teaching assignments in the Lexington area.**

The student teacher is expected to follow the calendar of the school where he or she will do student teaching. Typically the student will be involved for the full school day. The student is also expected to attend all University seminars related to student teaching.

Students wishing to participate in the **COST** program (overseas student teaching) must apply and be accepted two semesters prior to the semester in which they plan to do student teaching and must complete the requirements for overseas student teaching.

### Student Teaching in Agricultural Education, Communications and Leadership, and Home Economics Education

Transient students and graduate students in agricultural education, communications and leadership may take student teaching without having a semester in residence on the campus. Students take 18 semester hours of work (including EDP 203) during the student teaching semester. If they have had EDP 203, they will take 15 semester hours including student teaching.

In order to take student teaching in home economics education, a student must have completed three hours in techniques of teaching home economics in the secondary school. Student teaching and adult education are experienced in off-campus teaching centers. Students may elect to live in the community for approximately 12 weeks and perform the activities of a teacher in the community under the guidance of a trained supervising teacher.

### Praxis II and Internship

All students who wish to receive a Provisional Teaching Certificate in Kentucky must meet the state-defined scores on the NTE (Praxis II) and successfully complete a one-year paid teaching internship. Students wishing certification in other states are responsible for obtaining requirements and applications from those states, as certification requirements vary among states.

### Certification

The University of Kentucky offers curricula for most certificates issued by the Kentucky Department of Education. Certification requirements are subject to change by the Kentucky Education Professional Standards Board at any time.

Based upon completion of a program leading to certification, including College of Education requirements, and submission of satisfactory test scores to the Kentucky Department of Education, the student is qualified for a Statement of Eligibility to do a one-year internship in Kentucky. Upon successful completion of the internship, the student is eligible for the Professional Teaching Certificate. Application for the desired certificate must be made by the student during the student teaching semester.

Curricula are also offered for fifth-year programs for renewal of professional certificates for elementary and secondary teachers; master's degree programs leading to Rank II for elementary and secondary teachers; programs above the master's degree which lead to certification in school administration and supervision and school psychology; and Rank I programs for all graduate certification areas.

### Twelve-Grade Certification in Art, Health Promotion, Music, and Kinesiology (Physical Education)

Programs in Art, Health Promotion, Music, and Kinesiology lead to 12-grade certification. Specific required courses must be taken in addition to the major. Half the student teaching must be done in an elementary school and half in a secondary school. Requirements for Art Education and Music Education are in the *College of Fine Arts* section of this Bulletin.

## GRADUATION REQUIREMENTS

To graduate from the College of Education, a student must, while meeting specified requirements, complete all program requirements with specified grade-point averages in professional education; in an area of concentration, or major and minor and/or support area, or teaching field and subject concentrations; and in overall University work. The minimum number of hours required for graduation is 128. Some programs exceed this minimum. Students who wish to obtain a teaching certificate must satisfy state certification requirements as well as University requirements for graduation.

All students must fulfill University Studies requirements for graduation. Students should work closely with advisers to ensure that they select courses which best satisfy both University Studies requirements and state certification requirements.

### Related Studies Component

The Related Studies Component varies among programs. Students should work closely with their advisers to ensure that the correct courses are selected to meet the Related Studies Component.

All other program requirements, including professional requirements and requirements in the student's subject matter area, are outlined in the sections that follow. Requirements for teacher education programs are subject to changes made by the Education Professional Standards Board. Students are encouraged to contact the College of Education for additional information.

### Advising

Prior to formal admission to a teacher education program, students interested in becoming teachers are assigned advisers in 166 Taylor Education Building (TEB). All students interested in special education should talk with JoAnn Berryman, 119 TEB. Students interested in health and/or physical education should talk with Barbara Call, 120 Seaton Building, or Steve Parker, 201 Seaton Building. All other students have an adviser in 166 TEB. Students whose last names begin with A-K are assigned to Rita Stevenson; students whose last names begin with L-Z are assigned to Linda Hensley. Students planning to teach music or art are advised through the College of Fine Arts. After formal admission to a specific teacher education program, students are assigned to an adviser who is a faculty member in that program.

# DEPARTMENTS AND PROGRAMS

## ADMINISTRATION AND SUPERVISION

The Department of Administration and Supervision seeks to improve the quality of American education through improved training and competence of administrators. The department is particularly mindful of its obligation to supply the needs of Kentucky for high quality administrators in public schools and educational agencies. Advanced programs are offered to meet certification requirements for elementary, middle, and secondary principals, supervisors of instruction, and superintendents of schools.

## B.S. in Family Studies with a major in EARLY CHILDHOOD EDUCATION

Requirements for this certification program are in the *College of Human Environmental Sciences* section of this Bulletin. Advising for early childhood education is done through that college.

## CURRICULUM AND INSTRUCTION

The Department of Curriculum and Instruction offers both undergraduate and graduate programs. Undergraduate programs prepare teachers for elementary, middle school, and secondary levels. Graduate programs include: advanced degrees in teaching at elementary, middle,

and secondary levels; preparation for teaching at the college/university level; and preparation for instructional design roles in business and industry.

## B.A. in Education with a major in EARLY ELEMENTARY EDUCATION

## REQUIREMENTS FOR EARLY ELEMENTARY EDUCATION

In order to complete the University Studies requirements as well as the state-required courses outside the teaching majors and minors, students must complete both University Studies and Related Studies requirements. Complete the following plan for meeting both requirements. University Studies and Related Studies must total at least 45 hours.

### UNIVERSITY STUDIES COMPONENT

(43-57 hours)

**Basic Skills**

A. MA 109 or Math ACT 26 **or** UK by-pass exam ..... 0-3
B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communication Skills**

A. Calculus (MA 123) **or** STA 200 **plus** PHI 120 **or** PHI 320 ..... 3-6
B. Writing (ENG 101 and 102) ..... 6
C. Oral Communication (COM 181) ..... 3

**Disciplinary Requirements**

A. Natural Sciences
BIO 104 **and** BIO 106 **plus** one lab (BIO 105 or BIO 107) ..... 7
B. Social Sciences
Choose two courses from a single discipline, and one additional course from a separate discipline: anthropology, economics, geography, political science, sociology ..... 9

C. Humanities ..... 12
Choose clustered courses HIS 104 **plus** HIS 105 **and** ENG 261 **plus** ENG 262

With the aid of an adviser, and in accordance with University guidelines, students may choose other appropriate pairings to include at least one history sequence (two courses) and one literature course. These courses, if taken in pairs, will fulfill the Cross-Disciplinary requirement as well.

**Cross-Disciplinary** ..... 6
See notation under Humanities above.

**Cross-Cultural** ..... 3
Choose one course from the cross cultural listings. This course must be in an area other than history and disciplines chosen to fulfill Social Sciences requirements listed above under "B."

### RELATED STUDIES COMPONENT

(34-36 hours)

A-E 270 Introduction to Art Education ..... 2
A-E 272 Workshop in Design Education ..... 2
MUS 260 Teaching Music in the Elementary Grades I (fall only) ..... 2
MUS 261 Teaching Music in the Elementary Grades II (spring only) ..... 2
MA 201 Mathematics for Elementary Teachers ..... 3
(Prereq: MA 109)
MA 202 Mathematical Problem Solving for Elementary Teachers ..... 3
(Prereq: A grade of **C** or better in MA 201. Also recommended: a course in logic [e.g. PHI 120] or a course in calculus [e.g. MA 123])
PSY 100 Introduction to Psychology ..... 4
LIS 510 Children's Literature and Related Materials ..... 3
PHI 100/130 (If philosophy was not taken to fulfill University Studies Area II-A) ..... 3

**Physical Science** (Choose one of the following options:) ..... 7-9
CHE 105, CHE 107 and CHE 115 ..... 9
GLY 101, GLY 111 and GLY 242 ..... 7
PHY 151/152 Introduction to Physics **plus** PHY 153 Laboratory for Elementary and Middle School Teachers ..... 7
PHY 201 and PHY 213 ..... 9
PHY 211 and PHY 203 ..... 9

**Social Science** ..... 3
Take one social science course from one of the same social science disciplines taken in III-B of University Studies.

### PROFESSIONAL EDUCATION REQUIREMENTS

(50 hours)

EDP 202 Human Development and Learning ..... 3
EDP 203 Teaching Exceptional Learners in Regular Classrooms ..... 3
EPE 301 Education in American Culture ..... 3
FAM 554 Working with Parents ..... 3

**All of the following courses require admission to the Teacher Education Program:**

KHP 380 Health Education in the Elementary School ..... 2
KHP 382 Physical Education for Elementary School Teachers ..... 2
EDC 317 Introduction to Instructional Media ..... 1
EDC 329 Teaching Reading and Language Arts ... 3
(Prerequisite to EDC 339)

**Professional Block** (To be taken the semester prior to student teaching. Students must take no other courses when enrolled in this block.)

EDC 323 Classroom Management and Discipline . 3
EDC 326 Teaching Social Studies in the Elementary School (Prereq: 15 hours social science) ..... 3
EDC 328 Teaching Science in the Elementary School (Prereq: 12 hours science) ..... 3
EDC 337 Teaching Mathematics in Elementary Schools (Prereq: MA 202) ..... 3
EDC 339 Designing a Reading and Language Arts Program for the Elementary School (Prereq: EDC 329) ..... 3
EDC 322 Elementary Practicum ..... 3

**Student Teaching**

EDC 433 Student Teaching in the Elementary School (seminar included) ..... 12

Students must complete all Professional Education courses with a GPA of 2.5 or better before they can student teach.

### AREA OF SPECIALIZATION EARLY ELEMENTARY

(12-15 hours)

Students must complete an Area of Specialization by meeting the requirements in one of the six options listed below. This area of specialization will consist of 12-15 semester hours, with at least 12 semester hours being taken beyond the University Studies and Related Studies requirements.

**Mathematics** (12 hours)

Choose 12 semester hours of course work from the following courses and additional mathematics courses with the aid of an adviser.

MA 112 Trigonometry (two hours credit)
MA 123* **or** MA 113 Calculus
MA 310 Mathematical Problem Solving for Teachers
MA 341 Topics in Geometry (recommended for students with previous work in geometry)

***Note:** If MA 123 was taken to fulfill Area II-A of University Studies, Calculus (MA 123 or MA 113) cannot be counted in this area of specialization.

**Science** (12-13 hours)

A. Choose one course in each of the science disciplines listed below, if the discipline was not chosen to meet the University Studies requirements.
B. Choose additional electives from the science disciplines listed below and/or astronomy and climatology to total at least 12 semester hours beyond the University Studies requirement.
biology, chemistry, geology, physics

**Social and Behavioral Sciences** (12 hours)

To fulfill this area of specialization, courses must be chosen from among the disciplines listed here:

history, sociology, anthropology, geography, economics, political science, psychology

A. Choose two courses (six hours) from one discipline already taken to fulfill University Studies Area III-B.
B. An additional six hours should be comprised of one course in each of two disciplines not taken previously.
C. At least three hours of Kentucky Studies must be included within the total program.

**Language and Writing** (12 hours)

EDC 334 Oral and Written Language Development in the Elementary School
Plus one course from each of the following areas (A, B, C):

**Area A**

ENG 205 Intermediate Writing
ENG 207 Beginning Workshop in Imaginative Writing
ENG 305 Advanced Writing
ENG 509 Composition for Teachers

**Area B**

ENG 201 (JAT 250) Etymology
ENG 414G Introduction to Modern English Linguistics
COM 350 Language and Communication
ENG 211 (LIN 211) Introduction to Linguistics
ANT 215 Introduction to Anthropological Linguistics
CD 277 Introduction to Disorders of Speech and Language

**Area C**

ENG 374 American Folklore
ENG 472G Special Topics in Folklore
ENG 473G Survey of World Folklore
ENG 477G Regional, Occupational, and Ethnic Folklore of the United States
ENG 478G Appalachian Folklore
ENG 479G The Folktale
ENG 356 Studies in Black American Literature
ENG 369 Studies in Southern American Literature
ENG 375 The Woman Writer
ENG 513 Teaching English as a Second Language
ENG 418 History of the English Language
ENG 320 Introduction to Literary Study

**FOREIGN LANGUAGE** (15 hours)

**Required:**

ENG 414G Introduction to Modern English Linguistics
ENG 513 Teaching English as a Second Language (Prereq: one course in linguistics)
**or**
ANT 518 Language in Culture

Plus nine hours of a foreign language

**CREATIVE ARTS** (12 hours)

Choose three credit hours from each of the following four areas to total 12 hours for the Creative Arts specialization:

A. **Music** ..... 3
B. **Art** ..... 3
C. **Dance**
Choose from:
KHP 147 Dance Foundations I ..... 1
KHP 154 Dance Foundations II ..... 1
KHP 390 Dance Activities in the Elementary School ..... 2
KHP 393 Rhythmical Forms, Improvisation, and Analysis ..... 3
D. **Theatre Arts**
Choose from:
TA 126 Acting Ensemble ..... 3
TA 150 Fundamentals of Production ..... 3

**SPECIAL EDUCATION—LBD or MSD**
(Open only to students seeking dual certification in Special Education)

See *Special Education and Rehabilitation Counseling* section in this Bulletin.

**Note:** Students who plan to complete the LBD or MSD Special Education requirements do not complete one of the above Areas of Specialization. Rather, they take appropriate course work to accomplish dual certification and must have an adviser in LBD or MSD instead of Early Elementary. Any student who has been taking LBD or MSD and **chooses to complete Early Elementary** only MUST complete one of the Areas of Specialization listed under Early Elementary. Special Education courses may not be substituted for an Area of Specialization.

## B.A. in Education with a major in MIDDLE SCHOOL EDUCATION

## REQUIREMENTS FOR MIDDLE SCHOOL EDUCATION

In order to complete the University Studies requirements as well as the state-required courses outside the teaching majors and minors, students must complete both University Studies and Related Studies requirements. Complete the following plan for meeting both requirements. University Studies and Related Studies must total at least 45 hours.

### UNIVERSITY STUDIES COMPONENT

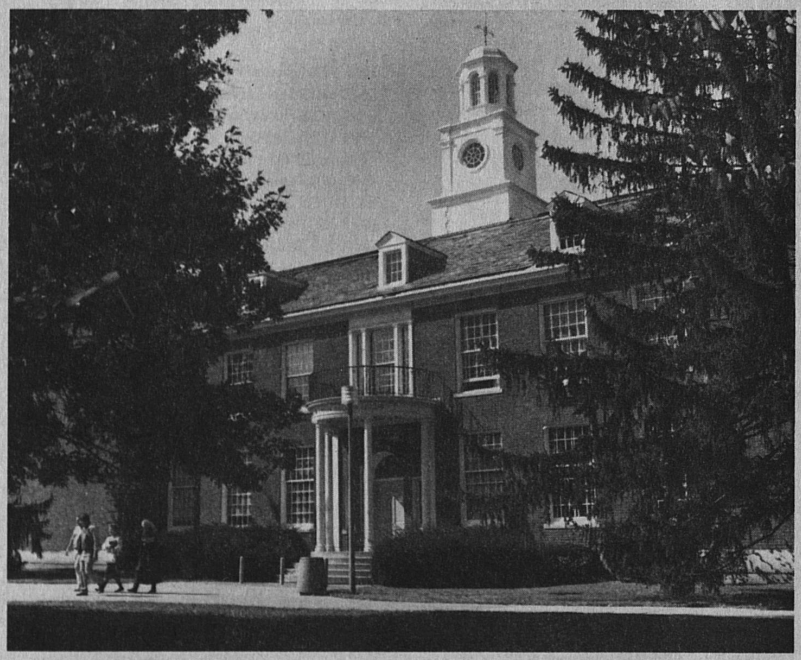
**Basic Skills**
A. MA 109 or Math ACT 26 or UK by-pass exam **or** any calculus course ..... 0-4
B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communication Skills**
A. Any calculus course **or** STA 200 **and** PHI 120 **or** 320 ..... 3-6
B. (ENG 101 and ENG 102) **or** ENG 105 ..... 3-6
C. COM 181 **or** COM 252 ..... 3

**Disciplinary Requirements**
A. Natural Sciences
Biological Science Sequence* ..... 6
**or**
Physical Science Sequence:*
PHY 151/152 Introduction to Physics ..... 6
PHY 153 Laboratory for Elementary and Middle School Teachers ..... 1
*See note under RELATED STUDIES COMPONENT
B. Social Sciences (Choose from political science, sociology, anthropology, economics, and geography.) ..... 6
C. Humanities ..... 6
Choose the Clustered Courses which make a total of twelve hours; six hours apply to the humanities and six hours apply to the Cross-Disciplinary components.
HIS 108 and HIS 109
**plus** ENG 251 and ENG 252 ..... 12
**or**
HIS 104 and HIS 105
**plus** ENG 261 and ENG 262 ..... 12
**or**
HIS 229 and HIS 230
**plus** CLA 210 and CLA 261 ..... 12

With the aid of an adviser, and in accordance with University guidelines, students may choose other appropriate pairings to include at least one history sequence (two courses) and one literature course. These courses, if taken in pairs, will fulfill the Cross-Disciplinary requirement as well.

**Cross-Disciplinary** ..... 6
Choose the Clustered Courses as listed above.



**Cross-Cultural** ..... 3
Choose one course from the Cross-Cultural listings. This course must be in an area other than those chosen to fulfill the Social Sciences requirement.

(anthropology, geography, political science)

### RELATED STUDIES COMPONENT (10-11 hours)

PSY 100 (to meet state certification requirements) ..... 4
Natural Sciences* ..... 6-7
*If biological science was taken in University Studies, take physical science, 6-7 hours. If physical science was taken in University Studies, take biological science, six hours.

### PROFESSIONAL EDUCATION REQUIREMENTS (40 hours)

EDP 202* Human Development and Learning ..... 3
EDP 203* Teaching Exceptional Learners in Regular Classrooms ..... 3
EPE 301* Education in American Culture ..... 3

**All of the following courses require admission to the teacher education program:**
EDC 317 Introduction to Instructional Media ..... 1
EDC 329* Teaching Reading and Language Arts .. 3
(Prerequisite to EDC 330)
EDC 341* Middle School Curriculum and Instruction (spring only) ..... 3
EDC 330* Designing a Reading and Language Arts Program for the Middle School (fall only) ..... 3
EDC 343* Early Adolescent Learner: Practicum (fall only) ..... 3
Special Methods Courses in TWO Areas of Specialization* (fall only) ..... 6
Choose from:
EDC 345 Teaching Mathematics in the Middle School
EDC 346 Teaching Social Studies in the Middle School
EDC 347 Teaching English and Communication in the Middle School
EDC 348 Teaching Science in the Middle School
EDC 349 Student Teaching in the Middle School ..... 12
*These courses include clinical and/or field hours.

**Note:** EDC 330, EDC 343, and the two methods classes will be taken as a block in a fall semester.

Electives as needed to total a minimum of 131 hours. (All the requirements must be met, so the hours may total more than 131.)

### AREAS OF SPECIALIZATION

Students wishing to become certified in middle school (grades 5-8) must select two of the following areas of specialization. Course requirements, particularly in the areas of English and Communication and Mathematics, have been prioritized to reflect prerequisite knowledge. Students should plan course work in these areas with the assistance of an adviser.

**English and Communication** (27 hours)
**Required:**
COM 181* Basic Public Speaking ..... 3
**or**
COM 252* Introduction to Interpersonal Communication ..... 3

**Select two courses (one must be American Literature)**
ENG 252* Survey of American Literature II ..... 3
ENG 320 Introduction to Literary Study ..... 3
ENG 360 The Short Story ..... 3
ENG 361 Literary Types ..... 3
ENG 363 Special Topics in Literature ..... 3
ENG 364 Studies in Contemporary Literature ..... 3
ENG 369 Studies in Southern American Literature ..... 3

CLA 261 Literary Masterpieces of Greece and Rome ..... 3

**Select one course:**
ENG 211 Introduction to Linguistics ..... 3
ENG 414G Introduction to Modern English Linguistics (fall only) ..... 3
COM 350 Language and Communication ..... 3
ANT 518 Language in Culture ..... 3

**Select two courses:**
ENG 305 Advanced Writing ..... 3
ENG 401 Workshop in Professional Writing ..... 3
ENG 405 Editing English Prose ..... 3
ENG 509 Composition for Teachers (fall only) ..... 3

**Select one course:**
LIS 513 Literature and Related Materials for Early Adolescence ..... 3
EDC 542 Children's Literature ..... 3

**Select two courses beyond University Studies:**
Communications, journalism, English as a Second Language, theatre, folklore, film, literature ..... 6

*Six of these hours can be counted from University Studies.

**Mathematics** (24-25 hours)
**Required:**
MA 201 Mathematics for Elementary Teachers I ... 3
MA 202 Mathematical Problem Solving for Elementary Teachers ..... 3
CS 101 Introduction to Computing I ..... 3
MA 123 Elementary Calculus and Its Applications ..... 3
**or**
MA 113 Calculus I ..... 4
STA 291 Statistical Method* ..... 3
MA 310 Mathematical Problem Solving for Teachers ..... 3
MA 341 Topics in Geometry (fall only) ..... 3

**Select one course:**
MA 114 Calculus II ..... 4
MA 261 Introduction to Number Theory ..... 3
MA 262 Linear Algebra ..... 3
Mathematics Elective (adviser approval required) ..... 3

A sound background for students selecting this specialization includes two years of high school algebra and one year of geometry. Students without two years of high school algebra must take MA 108R (no credits given) and should take MA 109 before beginning this sequence of courses.

*If STA 200 was taken to fulfill Inference and Communication Skills of University Studies, STA 291 is still required.

**Science** (32-34 hours)*
**Required:**
BIO 104 Animal Biology ..... 3
BIO 105 Animal Biology Laboratory ..... 1
BIO 106 Principles of Plant Biology ..... 3
BIO 107 Plant Biology Laboratory ..... 1
BIO 451G Introductory Ecology ..... 4

**Select one of the following science sequences to complete 9-10 hours:**
CHE 105 General College Chemistry I ..... 3
CHE 107 General College Chemistry II ..... 3
CHE 115 General Chemistry Laboratory ..... 3
**or**
GLY 101 and GLY 111 Physical Geology and Laboratory ..... 4
GLY 102 and GLY 112 Historical Geology and Laboratory ..... 4
Electives in Earth Science ..... 3
**or**
PHY 211 General Physics ..... 5
PHY 213 General Physics ..... 5

**Also required:**
From the list above, complete a minimum of five hours in each of the remaining two sciences not chosen previously. Laboratory experience must be included in each of the two fields.

*Six of these hours can be counted from University Studies.

**Special Education** (34 hours)
A student who chooses LBD or MSD as one Area of Specialization will have an adviser in the Special Education and Rehabilitation Counseling Department. See Department of Special Education and Rehabilitation Counseling offerings.

**Social Studies** (30 hours)*
**Required:**
HIS 104 A History of Europe Through the Mid-Seventeenth Century ..... 3
HIS 105 A History of Europe from the Mid-Seventeenth Century to the Present ..... 3
HIS 108 History of the United States Through 1865 ..... 3
HIS 109 History of the United States Since 1865 .. 3
One cross-cultural course in any social science, i.e., non-western** ..... 3
GEO 152 Regional Geography of the World ..... 3
Political Science Elective** ..... 3
Economics Elective ..... 3
Sociology Elective** ..... 3
Anthropology Elective (must be cultural anthropology)** ..... 3

*Twelve of these hours can be counted from University Studies.

**At least six hours of these courses must be at the 300 level or above.

## B.A. in Education with a major in SECONDARY EDUCATION

## REQUIREMENTS FOR SECONDARY EDUCATION

Specific course requirements for each secondary education major may be obtained in 166 Taylor Education Building. Students should work closely with their advisers to make course selections.

### UNIVERSITY STUDIES REQUIREMENTS

The University Studies requirements for the secondary education programs may be met by following the courses listed in the *University Studies* section of this Bulletin. (There are a few exceptions that need to be followed: mathematics education requires MA 113 and PSY 100. Some other programs require PSY 100 in addition to the social sciences component.)

### PROFESSIONAL EDUCATION (27-33 hours)

EDP 202 Human Development and Learning ..... 3
EDP 203 Teaching Exceptional Learners in Regular Classrooms ..... 3
EPE 301 Education in American Culture ..... 3
Methods classes and student teaching ..... 18-24

**Note:** Formal admission to the Teacher Education Program is required prior to methods classes and student teaching.

### ART EDUCATION

The requirements for K-12 art education are listed in the *Fine Arts* section of this Bulletin.

### SECONDARY ENGLISH

PSY 100 is required in addition to the social sciences component of University Studies. Students majoring in Secondary English will select one of the following programs. By taking Plan 1 or Plan 2, a student will be certified to teach in both areas of study. If Plan 3 or Plan 4 is chosen, only the **major** study component will provide for certification. The advantage in choosing Plan 3 or Plan 4 is the broader background in related areas which should make it possible for the teacher to enrich his or her program.

**Plan 1**
Double major in English (33 hours) and a foreign language (French, German, Latin, or Spanish).

**Plan 2**
English major (33 hours) and approved minor (21-24 hours) from one of the following areas:

Journalism (21 hours)
Dramatics (theatre arts) (21 hours)
Teaching English as a second language (21 hours)
Foreign language (24 hours)

**Plan 3**
English major (33 hours) and two support areas of 12 hours in each of two related fields approved by adviser: art, classical languages and literatures, communication, French literature, German literature, history, journalism, library and information science, linguistics, philosophy, political science, psychology, Russian and Eastern studies, sociology, Spanish and Italian literatures, speech, and theatre.

**Plan 4**
English major (33 hours) and 24 hour support block from three or more related fields approved by adviser: all of the fields listed for Plan 3 above, plus anthropology and telecommunications.

### SECONDARY DRAMATICS AND SPEECH

Students majoring in secondary dramatics and speech education (38 hours) will also complete a major in English education (33 hours) with all appropriate methods classes.

### SECONDARY FOREIGN LANGUAGES

When selecting a program, the student will be certified to teach the courses in the **major and the minor**. By taking Plan 1 or Plan 2, a student will be certified to teach in both areas of study. If Plan 3 is chosen, only the **major** study component will provide for certification. The advantage in choosing Plan 3 is that a student will have a broader background in related areas, which should make it possible for the teacher to enrich his or her program.

The Education Professional Standards Board has determined that foreign language education shall be an all-grades program (kindergarten through grade 12), but has not yet promulgated the regulations to implement this decision. Students in a foreign language education program track should check with a certification officer in 166 Taylor Education Building each semester in order to stay apprised of Board action.

Students who want to become certified to teach a foreign language must complete the requirements for a degree as well as the requirements for certification as designated through the Kentucky State Department of Education. Select from the plans listed below:

**Plan 1. Double Major:** French, German, Latin, Spanish, or English.

**Plan 2. Major and Minor** (54-56 hours)

Thirty hours for a major chosen from French, German, Latin, or Spanish, plus a 24-hour minor chosen as follows: French and Spanish majors may choose English, French, German, Latin, Russian, Spanish or a 21-hour minor in Teaching English as a Second Language. German and Latin majors must choose a 24-hour minor from English, French, or Spanish.

**Plan 3. Major with Two 12-Hour Support Areas** (24 hours)

**(Note: Plan 3 is open to French and Spanish majors only.)** Once the major has been selected, and the student wishes to complete the support area plan, two options are available:

**Option A**
Complete twelve hours (above 100 level, not in the major) from English, French, German, Latin, Russian, or Spanish.
**AND**
Complete 12 hours in history that supports the major field of study. The appropriate courses are listed with the major.

**Option B**
Complete any **two** languages (other than the major) with 12 hours each above the 100 level from English, French, German, Latin, Russian, or Spanish. See adviser for appropriate English courses.

## SECONDARY MATHEMATICS

Students majoring in secondary mathematics will select one of the following three plans. Plan 1 leads to certification in the major and minor. Plans 2 and 3 lead to certification in the major only:

**Plan 1.** Mathematics major (30 hours) and any education minor (21 hours) listed below:

biology, chemistry, computer science, earth science, physics

**Note:** The major is specific to certification. Students should consult an adviser in Education.

**Note:** Minors must be taken as defined by the College of Education in order to meet certification requirements.

**Plan 2.** Mathematics major (30 hours; see note under Plan 1) and two fields of 12 hours each chosen from the following support areas (a minimum of nine semester hours must be at level 300 or above):

biology, chemistry, computer science, earth science, English, foreign language, geography, journalism, history, physics, political science, psychology, sociology, theatre arts.

**Plan 3.** Mathematics major (30 hours) and any combination of 24 hours from areas related to mathematics. At least 12 semester hours must be taken in courses at level 200 or above. Courses in other areas may be selected with adviser's approval.

astronomy, biology*, chemistry, computer science, earth science, economics, engineering drawing, physics, statistics.

*BIO 110 may not be used as one of the courses in the support area.

## MUSIC EDUCATION

The requirements for K-12 music education are listed in the *Fine Arts* section of this Bulletin.

## SCHOOL MEDIA LIBRARIAN

This program is available only at the graduate level and only for teachers holding currently valid certificates. Details are available from the College of Communications and Information Studies.

## SECONDARY SCIENCES

Students majoring in secondary science in the College of Education choose one of the following five plans:

**Plan 1.** Major (30 hours in one of the sciences) plus: (A) a supporting certifiable minor (21 hours) in mathematics, **OR** (B) a supporting certifiable minor in one of the other sciences. The science fields from which the major and minor may be chosen are: biological science, chemistry, earth science, and physics.

**Plan 2.** Major with two 12-hour supporting subjects. The major of at least 30 hours must be chosen from the list in Plan 1, and the 12-hour blocks of supporting subjects must also be chosen from two other sciences in that list, except that one of the supporting subjects may be mathematics. Certification will be in the major only.

**Plan 3.** Major and four supporting subjects. Students selecting Plan 3 will complete a major of at least 30 semester hours in one of the sciences listed in Plan 1 and will complete a total of 24 semester hours from the three remaining science fields listed above, and mathematics, with a minimum of three semester hours in each. Certification will be in the major only.

**Plan 4.** A mathematics-physical science area of concentration. A teaching area in mathematics-physical science consists of a minimum of 48 hours in chemistry, physics, and mathematics, with no fewer than 15 semester hours in each. Students who choose this area are urged to exceed the minimum semester hour requirement and complete 21 semester hours in each of two of the three fields.

**Plan 5.** Science area of concentration. A teaching area in science consists of a minimum of 48 semester hours which includes the core requirements. The core courses shall include: biology (two courses); chemistry (two courses); earth science (two courses); physics (two courses). A course is defined as at least three semester hours. Laboratory experience must be afforded in at least one course from each discipline. All core courses will count toward the major and/or minor in the respective disciplines listed. Also included must be one of the following:

A.* A major of 30 hours chosen from one of the disciplines listed in the core.

*Note: If biology is chosen as the major, at least nine hours of the work must be done at or above the 400 level.

B. Two certifiable minors chosen from the disciplines listed in the core, or

C. One certifiable science minor chosen from the disciplines listed in the core, plus a certifiable minor in mathematics (21 hours including the prerequisite courses). If this option is chosen, the total required will be 69 hours—48 for the science area plus 21 for mathematics minor.

## SECONDARY SOCIAL STUDIES

The following are goals for social studies graduates:

1. An understanding of American society, its past and contemporary situations, and its place in the larger world, to be fulfilled by course work.
2. Knowledge of social science concepts, and inquiry and interpretive skills, to be fulfilled by course work.
3. Opportunities for reflective thinking and values clarification, and for development of human relationship skills, to be fulfilled by course work and experience.
4. An historical perspective, to be fulfilled by history as a primary or secondary area.
5. A multi-cultural and global perspective, to be fulfilled by experiences and/or course work prior to, during, and as part of the program.
6. Experiences in community participation, to be fulfilled prior to, during, and as part of the program.

Students will fulfill most of the goals for social studies by choosing one of the plans below. Goals 5 and 6, however, can best be fulfilled by experiences that will vary greatly according to the individual and which therefore cannot be required as courses are. Students may include experiential education credit in their programs, if approved by the Program Faculty.

**Plan 1.** Major in history (30 hours) with a minor (21 hours) in anthropology,* economics, geography, political science, psychology, or sociology, and a support area (15 hours) which includes one course from each of the social sciences not chosen as a minor. PSY 100, required for all teachers, may count as the psychology course. Certification will be in the major and minor.

**Plan 2.** Major (30 hours) in economics, geography, political science, psychology, or sociology, with a minor (21 hours) in history and a support area (15 hours) which includes one course from each of the social sciences not chosen as a minor. PSY 100, required for all teachers, may count as the psychology course. Certification will be in the major and minor.

**Plan 3.** Area of concentration in social studies, including history (21 hours and same requirements as for the minor) and 18 hours in one and nine hours in two and three hours in three of the following subjects. Certification will be in areas where at least nine hours have been completed:
anthropology, economics, geography,
political science, psychology, sociology

**Note:** One history course must be non-western.

*Anthropology is not a certifiable teaching field.

## EDUCATIONAL AND COUNSELING PSYCHOLOGY

The Department of Educational and Counseling Psychology offers work leading to advanced degrees. General areas of emphasis include educational psychology, school psychology, and counseling psychology. No undergraduate degrees are awarded.

## EDUCATIONAL POLICY STUDIES AND EVALUATION

The Department of Educational Policy Studies and Evaluation provides a unique opportunity for students who wish to develop the knowledge, judgment, and research skill required to address educational issues with flexibility and imagination. Students are offered the resources of historical, sociological, philosophical, and comparative analysis; knowledge of current educational issues; expertise in evaluation research; and the opportunity to learn skills necessary to evaluate the significance of studies that bear on policy. The department offers advanced degrees only.

## KINESIOLOGY AND HEALTH PROMOTION

The Department of Kinesiology and Health Promotion offers undergraduate courses and degree programs in kinesiology (physical education) and health promotion. Students are encouraged to take one 1-credit physical education class each semester during the first two years of college.

The Physical Education University Service program offers beginning instruction in both individual and team activities. Individual skill instruction is available in weight training, conditioning and fitness, golf, racquet sports, gymnastics, swimming, scuba diving, aerobic running and swim-

ming, and dancing. Instruction in such team activities as basketball, soccer, volleyball, and softball is also available. In addition, intermediate and advanced courses in many of the activities are offered.

The kinesiology program is designed for students interested in teaching as well as those interested in physical education positions in industry. Students desiring teacher certification in the secondary schools complete standard University requirements and a 40-hour program in the major. Those not desiring certification may select from two options: business and exercise.

The purpose of health promotion is to promote quality life for all people. This area of study is interdisciplinary, extending into biology, psychology, sociology, and medicine. Health promotion generally focuses on the whole individual, including social and emotional dimensions, not just the physical.

The program is geared toward teacher training in health promotion; however, opportunities for health educators exist in community agencies, adult fitness programs, and health education programs in industry and business.

## B.A. in Education with a major in HEALTH PROMOTION

(Teacher Certification Program)

**University Studies Requirements**

Students majoring in health promotion must complete the University Studies requirements with specific courses identified as follows:

**Oral Communication**
COM 181 or COM 287

**Natural Sciences**
BIO 103 and BIO 104

**Social Sciences**
Two of the following:
PSY 100, SOC 101, FAM 252

In addition, students must complete the Related Studies Component, the Professional Education requirements (for secondary teaching), and the program requirements listed below.

| Premajor Requirements | Hours |
|---|---|
| PSY 100 Introduction to Psychology | 4 |
| SOC 101 Introductory Sociology | 3 |
| BIO 208/209 Principles of Microbiology and Laboratory | 5 |
| ANA 206 Basic Human Anatomy | 3 |
| PGY 206 Elementary Physiology | 3 |
| Elective | 3 |

| Professional Education Sequence | Hours |
|---|---|
| EDP 202 Human Development and Learning | 3 |
| EDP 203 Teaching Exceptional Learners in Regular Classrooms | 3 |
| EPE 301 Education in American Culture | 3 |
| KHP 344 Physical Education in the Secondary School | 3 |
| KHP 362 Field Experiences in Secondary Education | 1 |
| EDC 317 Introduction to Instructional Media | 1 |
| EDA 401 The Professional Teacher: Legal Perspectives | 1 |
| KHP 430 Methods of Teaching Health Education | 3 |
| KHP 371 Student Teaching in Health Education | 12 |

| Major Requirements | Hours |
|---|---|
| **Required:** | |
| KHP 190 First Aid and Emergency Care | 2 |
| KHP 220 Sexuality Education | 2 |
| KHP 222 Drug Education | 2 |
| KHP 230 Human Health and Wellness | 3 |
| KHP 330 Planning and Implementing Health Education Programs | 3 |
| KHP 445 Introduction to Tests and Measurements | 3 |
| KHP 535 School Health Dilemmas of Special Populations | 3 |
| NFS 101 Food and Nutrition for Man | 3 |
| Choose at least nine hours from the following electives: | |
| KHP 395 Independent Work in Health and Safety or Physical Education or Recreation | 3 |
| KHP 509 Workshop in Health and Safety | 1-3 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |
| FAM 252 The Individual, Marriage, and Family | 3 |
| HSM 250 Introductory Epidemiology | 3 |

Other health related elective courses may be selected with permission of the Health Promotion faculty and must be relevant to the student's professional preparation program.

### Health Promotion Minor

| | Hours |
|---|---|
| **Required:** | |
| KHP 190 First Aid and Emergency Care | 2 |
| KHP 220 Sexuality Education | 2 |
| KHP 222 Drug Education | 2 |
| KHP 230 Human Health and Wellness | 3 |
| KHP 330 Planning and Implementing Health Education Programs | 3 |
| KHP 445 Introduction to Tests and Measurements | 3 |
| NFS 101 Food and Nutrition for Man | 3 |
| Choose at least six hours from the following electives: | |
| KHP 395 Independent Work in Health and Safety or Physical Education or Recreation | 3 |
| KHP 509 Workshop in Health and Safety | 1-3 |
| KHP 535 School Health Dilemmas of Special Populations | 3 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |
| FAM 252 The Individual, Marriage, and Family | 3 |
| HSM 250 Introductory Epidemiology | 3 |

Other health related elective courses may be selected with permission of the Health Promotion faculty and must be relevant to the student's professional preparation program.

Students selecting health promotion as a minor must also complete KHP 430, Methods of Teaching Health Education, three credit hours, from the Professional Education Sequence.

**NOTE:** Students who major in health promotion are also required to select a minor. Students may select any approved minor offered at the University of Kentucky in consultation with the Health Promotion adviser.

## B.A. in Education with a major in KINESIOLOGY

(Teacher Certification Program)

The University Studies requirements must be completed with specific courses as follows:

| University Studies Requirements | Hours |
|---|---|
| **Area I** – Natural Science | |
| BIO 102 Human Ecology | 3 |
| BIO 103 Basic Ideas of Biology | 3 |
| **Area II** – Social Science | |
| PSY 100 Introduction to Psychology | 4 |
| plus one other course | |
| **Area IV** – Cross-disciplinary component | |
| NFS 101 Food and Nutrition for Man | 3 |
| ANT 235 Food and Culture | 3 |

In addition to the Related Studies Component and Professional Education requirements, the student must complete the program requirements listed below.

| Preprofessional Requirements | Hours |
|---|---|
| ANA 299 Functional Human Anatomy | 3 |
| PGY 206 Elementary Physiology | 3 |
| KHP 115 Service Course (Gymnastics) | 1 |
| KHP 152 Techniques of Swimming | 1 |
| **or** | |
| KHP 252 Water Safety Leadership | 2 |

| Professional Education Sequence | Hours |
|---|---|
| EDP 202 Human Development and Learning | 3 |
| EDP 203 Teaching Exceptional Learners in Regular Classrooms | 3 |
| EPE 301 Education in American Culture | 3 |
| KHP 263 Curriculum Design and Developmental Sports Skills in the Elementary School | 3 |
| KHP 344 Physical Education in the Secondary School | 3 |
| KHP 360 Physical Education in the Elementary School | 3 |
| KHP 361 Field Experiences with Elementary School Children | 1 |
| KHP 362 Field Experiences in Secondary Education | 1 |
| EDC 317 Introduction to Instructional Media | 1 |
| EDA 401 The Professional Teacher: Legal Perspectives | 1 |
| KHP 369 Student Teaching in Physical Education | 12 |

| Major Requirements Performance Area | Hours |
|---|---|
| KHP 147 Dance Foundations I | 1 |
| KHP 150 Soccer | 1 |
| KHP 153 Volleyball | 1 |
| KHP 154 Dance Foundations II | 1 |
| KHP 155 Principles of Conditioning | 1 |
| KHP 156 Gymnastics | 1 |
| KHP 157 Track and Field | 2 |
| KHP 159 Tennis | 1 |
| KHP 160 Badminton | 1 |
| KHP 161 Golf | 1 |
| KHP 162 Outdoor Education Through Activities | 1 |
| KHP 163 Team Handball/New Games | 1 |

| Major Requirements Content Area | Hours |
|---|---|
| KHP 200 The History and Philosophy of Physical Education and Sport | 3 |
| KHP 300 Psychology and Sociology of Physical Education and Sport | 3 |
| KHP 390 Dance Activities in the Elementary School | 2 |

KHP 420G Physiology of Exercise ..... 3
KHP 445 Introduction to Tests and Measurements ..... 3
KHP 515 Anatomical and Mechanical Kinesiology ..... 3
KHP 560 Motor Development in Infants and Young Children ..... 3
KHP 579 Adapted Physical Education ..... 3

### Electives

Students in the Kinesiology (Physical Education) Teacher Certification Program must select three hours of upper division free electives to meet graduation requirements.

### Kinesiology Requirements

Students who wish to complete a major in Kinesiology must follow one of the following plans of study:

**PLAN I:** Kinesiology major (39-40 hours) and Health Promotion major (33 hours).

**PLAN II:** Kinesiology major (39-40 hours) and a minor (21-24 hours) from one of the following:

Dance (it should be noted that there is no dance certification in Kentucky), health promotion, mathematics, psychology, or sociology. (The courses selected for the minor in each of these areas must meet the College of Education requirements.)

### Dance Minor (non-certified)

It should be noted that **there is no certification for dance in Kentucky**.

1. The following courses are required for the dance minor.

**Hours**

Ballet ..... 1
Modern Dance ..... 1
KHP 181 Modern Dance I ..... 2
KHP 182 Modern Dance II ..... 2
KHP 291 Folk Dance ..... 2
KHP 393 Rhythmical Forms, Improvisation, and Analysis ..... 3
KHP 592 Choreography ..... 2

2. In consultation with an adviser, and depending on academic and professional interests, the student shall select at least eight hours of courses from the following list:

KHP 290 History and Philosophy of the Dance ..... 3
KHP 293 Classical Ballet I ..... 2
KHP 294 Classical Ballet II ..... 2
KHP 390 Dance Activities in the Elementary School ..... 2
KHP 391 Theater Dance I ..... 2
KHP 392 Theater Dance II ..... 2
KHP 395 Independent Work in Health and Safety or Physical Education or Recreation ..... 3

### Health Minor (24 hours)

Requirements for the Health Minor are listed under the Health Promotion section detailed earlier.

### Mathematics Minor (21 hours)

**Required**
MA 113 Calculus I ..... 4
MA 114 Calculus II ..... 4
MA 213 Calculus III ..... 4
MA 341 Topics in Geometry ..... 3

**Choose from the following to complete 21 hours:**
MA 310 Mathematical Problem Solving For Teachers (spring only) ..... 3
MA 322 Matrix Algebra and Its Applications ..... 3
MA 361 Elementary Modern Algebra I ..... 3
**or**
MA 371 Elementary Set Theory and Number Systems ..... 3

### Psychology Minor (21 hours)

**Required**
PSY 100 Introduction to Psychology ..... 4
PSY 223 Developmental Psychology ..... 3
PSY 444G Social Psychology ..... 3
PSY 533 Abnormal Psychology ..... 3

**Select One**
PSY 301 Introduction to Humanistic Psychology ... 3
PSY 331 The Psychology of Adjustment ..... 3
PSY 532 Personality ..... 3
PSY 545 Small Group Behavior ..... 3

**Select One**
PSY 215 Experimental Psychology ..... 4
PSY 525 Human Senses and Perception ..... 3
PSY 550 Psychology of Learning ..... 3
PSY 556 Behavioral Neurosciences ..... 3

Choose an elective to complete 21 hours.

### Sociology Minor (21 hours)

**Required**
SOC 101 Introductory Sociology ..... 3
SOC 152 Modern Social Problems ..... 3

**Select One**
SOC 302/303 Sociological Research Methods I and II ..... 6
**OR**
SOC 451G/452G Foundations of Sociological Theory/Contemporary Social Theory ..... 6

An additional nine hours, at least six of which must be at the 300 level or higher.

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## B.A. in Education with a major in KINESIOLOGY

(Non-certification Program)

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Students may choose from two areas of specialization: business or exercise. In addition to fulfilling University Studies requirements, students complete the following:

### Preprofessional Requirements

ANA 299 Functional Human Anatomy ..... 3
PGY 206 Elementary Physiology ..... 3
NFS 101 Food and Nutrition for Man ..... 3
PSY 100 Introduction to Psychology ..... 4
KHP 115 Service Course (Gymnastics) ..... 1
KHP Service Course Elective ..... 1
(Business option only)
KHP 120 Service Course (Weight Training) ..... 1
(Exercise option only)

### Professional Kinesiology Requirements

Professional Activity Courses:
KHP 155 Principles of Conditioning **or** ..... 1
KHP 157 Track and Field ..... 2
KHP 152 Techniques of Swimming **or** ..... 1
KHP 252 Water Safety Leadership ..... 2

The Business option requires three or four courses (one credit hour each) from the following list. The Exercise option requires five courses (one credit hour each) from the list.

KHP 146 Flagball and Speedball
KHP 147 Dance Foundations I
KHP 148 Basketball
KHP 149 Wrestling
KHP 150 Soccer
KHP 151 Field Hockey
KHP 153 Volleyball
KHP 154 Dance Foundations II
KHP 156 Gymnastics
KHP 158 Archery and Softball
KHP 159 Tennis
KHP 160 Badminton
KHP 161 Golf

Theory Courses:
KHP 190 First Aid and Emergency Care ..... 2
KHP 230 Human Health and Wellness ..... 3
KHP 280 Recreation Program Planning and Leadership (Business option only) ..... 3

One officiating course (one credit hour) from the following:
KHP 320 Officiating Football
KHP 321 Officiating Basketball
KHP 322 Officiating Volleyball
KHP 323 Officiating Baseball-Softball

KHP 420G Physiology of Exercise ..... 3
KHP 445 Introduction to Tests and Measurements ..... 3
KHP 515 Anatomical and Mechanical Kinesiology ..... 3
KHP 573 Management of Sport ..... 3

### Education Courses

The student must select six hours of education courses, in consultation with an adviser.

### Area of Specialization

#### Business

CS 101 Introduction to Computing I ..... 3
ENG 203 Business Writing ..... 3
ACC 201 Principles of Accounting ..... 3
ACC 202 Principles of Accounting ..... 3
ECO 201 Principles of Economics I ..... 3
ECO 202 Principles of Economics II ..... 3
MKT 300 Marketing Management ..... 3
FIN 300 Corporation Finance ..... 3
MGT 301 Business Management ..... 3

**One** of the following:
MGT 320 Survey of Personnel and Industrial Relations ..... 3
DIS 300 Quantitative Analysis in Operations Management ..... 3
ACC 417G Income Taxation ..... 3
ACC 301 Intermediate Accounting I ..... 3

#### Exercise

CHE 104/106 Introductory General Chemistry and Introduction to Inorganic, Organic and Biochemistry ..... 7
PHY 201 General Physics ..... 4
KHP 240 Nutrition and Physical Fitness ..... 3
STA 291 Statistical Method ..... 3
KHP 340 Athletic Training ..... 2
PGY 412G Principles of Human Physiology Lectures ..... 4

**Practicum:** Required for both options.

KHP 577 Practicum in Recreation ..... 6

This practicum experience, arranged jointly by the student and the adviser, should take place in a setting appropriate to the student's career track.

### Electives

Students in the Business option select eight or nine hours of appropriate electives. Six hours of these are free electives and three hours should be chosen in consultation with the adviser.

Students in the Exercise option must select three hours of appropriate electives.

## SPECIAL EDUCATION AND REHABILITATION COUNSELING

The Department of Special Education and Rehabilitation Counseling offers two different programs of study at the undergraduate level: (1) learning and behavior disorders; and (2) moderate/severe disabilities.

Students enrolling in an undergraduate program should note that it is **not** possible to obtain dual certification in the usual four-year (eight-semester) undergraduate program. Students should contact the department for sample programs that illustrate options for scheduling courses to facilitate program completion. The MSD stand-alone program can be completed in four years. Students should consult *The Graduate School Bulletin* for graduate-level requirements.

### B.A. in Education with a major in LEARNING AND BEHAVIOR DISORDERS

Students graduating from this program obtain Kentucky teacher certification in elementary education (grades K-4) or middle school (grades 5-8) and in learning and behavior disorders (K-12). Graduates will be qualified to teach in regular elementary or middle schools; in public school programs for the educable mentally retarded, learning disabled, emotionally disturbed, and orthopedically handicapped; and in non-categorical special education programs for the mildly handicapped. Students are required to complete 146 semester hours of course work. With careful scheduling beginning in the freshman year, the program can be completed in either four and a half years or four years and two summer sessions.

#### University Studies Requirements

**Basic Skills**

A. MA 109 **or** Math ACT 26 **or** UK by-pass exam **or** any calculus course ..... 0-4

B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communication Skills**

A. MA 123 (or any calculus course*) **or** STA 200 **and** PHI 120 **or** 320 ..... 3-6

B. (ENG 101 and 102) **or** ENG 105 ..... 3-6

C. COM 181 (or COM 252*) ..... 3

*This option available for Middle School Certification.

**Disciplinary Requirements**

A. Natural Sciences
BIO 104 **and** BIO 106 **plus** one lab (BIO 105 **or** BIO 107) ..... 7

B. Social Sciences
Choose one course from each of two of the following disciplines:

anthropology, economics, geography, political science, sociology ..... 6

C. Humanities ..... 6

Choose the clustered courses that total 12 hours; six hours apply to the Humanities and six hours apply to the Cross-Disciplinary components. These courses must be taken at UK or transferred from a community college only if they have been approved by the University Studies Committee.

HIS 104 plus HIS 105
and ENG 261 plus ENG 262 ..... 12
**or**
HIS 108 plus HIS 109
and ENG 251 plus ENG 252 ..... 12
**or**
HIS 229 and HIS 230
and CLA 210 and CLA 261* ..... 12

*This option available for Middle School Certification.

With the aid of an adviser, and in accordance with University guidelines, students may choose other appropriate pairings to include at least one history sequence (two courses) and one literature course. These courses, if taken in pairs, will fulfill the Cross-Disciplinary requirement as well.

**Cross-Disciplinary Requirement**

Choose the clustered courses as listed above.

**Cross-Cultural Requirement** ..... 3

Choose one course from anthropology, geography, political science. This course must be in an area other than those disciplines chosen to fulfill Social Sciences requirements.

#### Related Studies Requirements

The Related Studies requirements vary depending on which option (early elementary or middle school) is selected. For complete information, contact the specific department in the College of Education.

#### Professional Education Requirements

Students follow the same requirements as early elementary and middle school majors, except that EDS 375 replaces EDP 203. For early elementary majors, EDS 513 replaces FAM 554 and EDS 516 replaces EDC 323.

#### Core Requirements

EDS 357 Initial Practicum in Special Education ..... 1
EDS 375 Introduction to Education of Exceptional Children ..... 3
(Must have a **C** or better before admission to TEP).
EDS 510 Early Childhood Education of,the Handicapped ..... 3
CD 511 Speech-Language Development and Disorders for the Severely Handicapped ..... 3
**or**
CD 512 Speech-Language Development and Disorders for the Mildly Handicapped ..... 3
EDS 513 Legal and Parental Issues in Special Education ..... 3
EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners ..... 3
EDS 517 Prosthetics for Children with Disabilities ..... 3

#### Area Requirements

**All of the following courses require admission to the Teacher Education Program.**

EDS 528 Educational Assessment for Students with Mild Disabilities ..... 3
EDS 529 Educational Programming for Students with Mild Disabilities ..... 3
(Prereq: EDS 513, 516, 528; EDC 329, 339, 337)
EDS 589 Field Experiences with Children with Mild Disabilities ..... 3
EDS 459 Student Teaching in Special Education ..... 6

### B.S. in Education with a major in SPECIAL EDUCATION: MODERATE/SEVERE DISABILITIES

Students graduating from this program obtain Kentucky teacher certification in Moderate/Severe Disabilities, kindergarten-grade 12, in four years. Students may undertake dual certification, combining MSD with early elementary or middle school education. Dual certification will usually require an additional two-to-three semesters. Students interested in dual certification should discuss their program with an adviser in the Department of Special Education and Rehabilitation Counseling before seeking formal admission to MSD and early elementary or middle school.

#### University Studies Requirements

**Basic Skills**

A. MA 109 **or** Math ACT 26 **or** UK bypass exam **or** any calculus course ..... 0-4

B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communication Skills**

A. Any calculus course **or** STA 200 **and** PHI 120 **or** 320 ..... 3-6

B. (ENG 101 **and** ENG 102) **or** ENG 105 ..... 3-6

C. Choose any course listed under "Oral Communication Requirement" ..... 3

**Disciplinary Requirements**

A. Natural Sciences

**Biological Science Sequence** (choose any 6 credits listed under Biology requirements, laboratory requirement optional) ..... 6
**or**
**Physical Science Sequence** (choose any 6 credits listed under Physical Science requirements, laboratory requirement optional) ..... 6

B. Social Sciences
(Select a total of two courses from among political science, sociology, anthropology, economics, and geography; for example, one sociology and one anthropology for a total of 6 credits from two different disciplines) ..... 6

C. Humanities and IV Cross-Disciplinary Requirement
HIS 108 **and** HIS 109
**plus** ENG 251 **and** ENG 252 ..... 12
**or**
HIS 104 **and** HIS 105
**plus** ENG 261 **and** ENG 262 ..... 12

**Cross-Disciplinary Requirement**

Choose from the Clustered Courses as listed in "C" above.

**Cross-Cultural Requirement**

Choose one course from the Cross-Cultural listings. This course must be in an area other than those chosen to fulfill the Social Science requirements (anthropology, geography, political science).

#### Related Studies Requirements

PSY 100 (to meet state certification requirements) ..... 4
MA 201 Mathematics for Elementary Teachers ..... 3
MA 202 Mathematical Problem Solving for Elementary Teachers ..... 3

Natural Sciences* ..... 6

*NOTE: If biological science was taken in University Studies, take physical science, six credit hours. If physical science was taken in University Studies, take biological science, six hours.

ENG 204 Technical Writing (Moderate/Severe Disabilities program requirement) ..... 3
LIS 510 Children's Literature and Related Materials ..... 3

### Professional Education Requirements

**All of the following courses require admission to the Teacher Education Program**

EDC 329 Teaching Reading and Language Arts ..... 3
EDC 339 Designing a Reading and Language Arts Program for the Elementary School ..... 3
EDC 337 Teaching Mathematics in Elementary Schools ..... 3
HPR 382 Physical Education for Elementary School Teachers ..... 2
MUS 260 Teaching Music in the Elementary Grades I ..... 2

### Area of Specialization: Special Education Requirements

**All of the following courses require admission to the Teacher Education Program**

**Special Education Department: Core Requirements**

EDS 357 Initial Practicum in Special Education ..... 1
EDS 375 Introduction to Education of Exceptional Children ..... 3
EDS 510 Early Childhood Special Education ..... 3
EDS 513 Legal and Parental Issues in Special Education (fall only) ..... 3
EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners ..... 3
EDS 517 Prosthetics for Children with Disabilities (fall only) ..... 3

**Moderate/Severe Disabilities Area: Teacher Certificate Requirements**

EDS 530 Characteristics of Mental Retardation ..... 3
EDS 548 Adaptive Behavior Assessment and Curriculum Design for Moderate Intellectual and Development Disabilities ..... 3
EDS 549 Advanced Practicum Methods In Moderate Intellectual and Developmental Disabilities ..... 4
EDS 558 Problems in Special Education: (Variable Topic)* ..... 1-9
EDS 550 Student Teaching for Moderate/Severe Intellectual and Developmental Disabilities ..... 6-12

*Collaboration and Inclusion in Community-Based Settings.

Students must complete all special education courses with a GPA of 2.5 or better before they can student teach.

**Electives**

Up to 6 credits of free electives may be chosen by students entering the university with two years of foreign language.

## COMMUNICATION DISORDERS

The undergraduate and graduate programs in communication disorders are now part of the department of clinical sciences in the College of Allied Health Professions. Prospective students should refer to the *Allied Health Professions* section of this Bulletin.

### B.S. in Agriculture with a major in AGRICULTURAL EDUCATION, COMMUNICATIONS AND LEADERSHIP

Requirements are listed in the *College of Agriculture* section of this Bulletin.

### B.A. in Education with a major in BUSINESS EDUCATION

The College of Education has suspended the Business Education major and the Business and Office Technology major, which led to the B.A. in Education. A new program is being developed in conjunction with The Graduate School. Interested students should check with the Director of Graduate Studies, Department of Curriculum and Instruction.

### B.S. in Home Economics with a major in HOME ECONOMICS EDUCATION

Requirements are listed in the *College of Human Environmental Sciences* section of this Bulletin.

### B.S. in Education with a major in INDUSTRIAL AND TECHNICAL EDUCATION

The College of Education is no longer admitting students to this program.

# ENGINEERING

*Thomas W. Lester, Ph. D., is Dean of the College of Engineering. Frederick C. Trutt, Ph.D., is Associate Dean for Administration and Undergraduate Affairs. John N. Walker, Ph.D., is Associate Dean for Graduate Studies, Research, and Development.*

The College of Engineering offers programs leading to undergraduate and graduate degrees in agricultural, chemical and civil engineering, computer science, and electrical, materials, mechanical and mining engineering as well as a graduate degree in engineering mechanics. Graduate training in biomedical engineering is also offered through the Colleges of Engineering and Medicine.

Creative accomplishment in the career of an engineer or computer scientist depends upon an education that stresses major ideas and fundamental concepts of engineering rather than specific technologies. The academic programs in engineering provide a sound background in the mathematical, physical and engineering sciences blended with the social sciences and humanities to ensure both a thorough education in engineering and a liberal education. Such an approach provides the best preparation for the engineer or computer scientist who must envisage and develop the technologies of the future and deal with scientific advances at present unknown.

The various curricula in the College of Engineering are broad, so that no student is limited to a narrow field of specialized knowledge but receives sufficient technical depth to provide a sound preparation for a professional career.

The first engineering degree from the University of Kentucky was granted in 1890. Since that time over 12,000 degrees have been awarded in the various fields of engineering. Among the alumni of the College of Engineering are those who have distinguished themselves in the major fields of industry, government and education.

Concern for the individual is a most important feature of education in the College of Engineering. Close faculty-student relationships are necessarily a meaningful part of the educational process. The faculty, in addition to their duties related to instruction and research, serve as advisers to the student in the preparation of the academic program best matched to the student's needs and intellectual capabilities.

### Accreditation

All engineering undergraduate programs offered by the College of Engineering are accredited by the Accreditation Board of Engineering and Technology (ABET).

### Undergraduate Programs in Engineering

The University of Kentucky grants the following degrees in the College of Engineering:

- Bachelor of Science in Agricultural Engineering
- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Materials Engineering
- Bachelor of Science in Mechanical Engineering
- Bachelor of Science in Mining Engineering

While these are the official degrees granted at the bachelor's level in the college, the prospective student is encouraged to study the wide variety of options available through technical electives, some of which are listed following the degree requirements of each department. Technical electives are included in each curriculum to allow the student to apply the fundamentals of a particular department to an area of special interest during the senior year.

Students in any department interested in biomedical engineering may make special arrangements to include a limited amount of such studies in the undergraduate program. Biomedical engineering is primarily the application of engineering principles to the solution of medical problems.

The Department of Chemical Engineering has approved an optional program in premedicine or predentistry. Students majoring in chemical engineering may arrange through their adviser to take courses which will satisfy the degree requirements for this program.

In response to industry requests, the College of Engineering and the College of Business and Economics have joined to offer a coordinated Bachelor of Science in Engineering and Masters of Business Administration. This intense, five-year program involves summer classes, corporate work opportunities, and study abroad. Students are selected for the program from all engineering majors after an application process during the spring semester of the freshman year. Selection is based on past academic performance, communication skills, and commitment to the program.

Graduate programs in the engineering fields of study are listed in *The Graduate School* section of this Bulletin.

### APPLICATION DEADLINE FOR COMPUTER SCIENCE

**Transfer Students** (Students who have completed 60 hours or more at UK, UK community colleges, or other accredited colleges or universities) — must submit application, transcript(s), and courses in progress to the Department of Computer Science by the following dates:

| Fall | Spring | Summer |
|---|---|---|
| March 1 | Oct. 1 | March 1 |

## ADMISSION POLICY

Admission to the University of Kentucky also provides admission to one of the pre-engineering programs or the lower division computer science program in the College of Engineering.

Application must be made for admission to a specific pre-engineering or computer science program. However, subsequent transfer between programs will be permitted and may be accomplished by applying and satisfying the appropriate specified criteria. Special application deadlines for admission to the lower division in computer science are listed in the box at the top of the previous page.

All undergraduate degree programs are divided into pre-engineering and engineering. Pre-engineering is broadly defined as the first two years of a program, while engineering is broadly defined as the last two years of the program. Every student must be admitted to engineering standing or upper division in a specific program prior to graduation.

### Engineering Admission

There are two procedures available to move from pre-engineering to engineering in one of the degree programs of the college. These two procedures are described in detail below. Admission to engineering in a degree program is necessary in order to be granted a baccalaureate degree in engineering. Students must complete at least 30 of the last 36 hours of their

programs in residence at the University. At least 24 credit hours must be departmental courses at or above the 300 level.

**NOTE:** These procedures apply to engineering programs only. Separate procedures apply to admission to the upper division in Computer Science as described in the corresponding section.

**A. Automatic admission.** Students enrolled in pre-engineering in a degree program and those applying to enter a program may progress to engineering in that program if they meet the following criteria: (1) submission of application for engineering standing in a department; (2) completion of a minimum of 50 semester hours acceptable toward the degree program with a minimum cumulative grade-point average of 2.5; (3) completion of the program requirements with a minimum grade-point average of 3.0 in the following courses – freshman English (writing courses), freshman chemistry course sequence, physics course sequence, calculus course sequence; and (4) completion of the additional specific program admission requirements as listed below.

**B. Admission Based Upon Departmental Review.** This procedure is available for those individuals who meet the requirements in (A) above with the exception of the grade-point averages. These individuals are encouraged to apply for a review of their academic record by the department of their choice. This review will give the student the opportunity to have his or her record evaluated in order to determine if there are special circumstances which should be considered in support of the admission decision. The specific criteria to be used during the departmental review can be obtained from each departmental office. In general terms, the criteria will consist of tangible factors such as overall grade-point averages, grades in specific courses, and resources available in the department, and intangible factors such as personal motivation, work experiences, and career plans. No department will consider an individual for admission unless the two grade-points mentioned in (A) above are both 2.25 or greater.

All students must apply for admission to engineering in a specific department. Those students who do not qualify for engineering in the department of their choice may be eligible for consideration for engineering in another department.

Pre-engineering students who meet all of the other requirements for engineering but who do not have a sufficient grade-point average to qualify for engineering in their department must move to another department in which they qualify for engineering or leave the College of Engineering within two semesters.

### Additional Specific Engineering Program Admission Requirements

**Civil Engineering** requires a grade of C or better in any civil engineering (or equivalent) course used to satisfy a degree requirement.

**Electrical Engineering** requires completion of EE 211, EE 221, and EE 222 with a grade of C or better in each course.

**Chemical Engineering** requires that CME 205, Process Principles I, and CME 210, Process Principles II, be completed with a C average for admission to engineering.

## COMBINED DEGREE PROGRAM

The College of Engineering has transfer agreements with many institutions throughout the state. Some of these institutions offer a "3/2" year dual degree program. Other academic institutions choose to offer this option to their students without benefit of a formal agreement. These programs enable students to enroll in a pre-engineering curriculum for the first three years at their respective schools and then transfer to the College of Engineering for the final two years. Upon completion, they receive two degrees, one from the school at which they originally enrolled and the other, a Bachelor of Science in the appropriate field of engineering from the University of Kentucky.

## COOPERATIVE EDUCATION PROGRAM

The Cooperative Education program gives students the opportunity to gain practical work experience before graduation by allowing them to alternate semesters of academic study with salaried, full-time career-related employment. Students who wish to participate in the Cooperative Education program in the College of Engineering should contact the Director of Cooperative Education.

To be eligible for this program, students should have a minimum grade-point average of 3.0. In addition, they should complete all the courses in the first two semesters of the degree program prior to the first work tour. Students will remain on a full-time, continuing student status while they are at work by registering for a one-hour, pass/fail course. The grade, assigned by the director, is based on both a work report written by the student and an evaluation completed by the immediate supervisor. Students who follow the program directives will extend their time in college by about one year and will gain a minimum of one year of professional experience.

The Cooperative Education program contributes significantly to the student's academic motivation, career preparation, and interpersonal skills development. Over 150 students and 50 employers nationwide now participate in the UK program.

## CONTINUING EDUCATION AND EXTENSION

The College of Engineering recognizes the rapid changes occurring in modern engineering technology. Students in engineering are made aware of the need to continue their studies after graduation. One of the ways to keep abreast of advances in engineering is for graduates to participate in continuing education programs now available through the engineering colleges throughout the country.

The responsibilities of the Office of Continuing Education and Extension at the University of Kentucky are to:

1. create and manage appropriate intensive noncredit technical courses of interest to and needed by practicing engineers;
2. develop appropriate video-based courses and materials to be of interest to practicing engineers. Such activity includes taping, live satellite uplinking, and two-way video/audio of engineering related courses and activities; and,
3. provide assistance in extension activities with other college and University units to be of assistance to engineers throughout the state.

### Financial Aid

The College of Engineering awards merit-based scholarships to incoming freshman and transfer students as well as to students already enrolled in the College. Generally, freshman scholarship applications are due in early January; transfer scholarship applications are due March 15; and continuing student applications are due April 15.

Awards are made for the upcoming academic year; no new awards are made for the spring semester. For further information, contact the College of Engineering Office of Student Services.

## MINIMUM REQUIREMENTS FOR GRADUATION

**NOTE:** The following graduation requirements apply to engineering programs only. Separate graduation requirements currently apply to the Computer Science program as described in the corresponding section.

To be awarded a Bachelor of Science degree in any field of engineering, a student must:

1. complete the University and College

requirements relating to writing and University Studies.

2. complete a minimum of 128 hours, exclusive of those earned in freshman college algebra and freshman college trigonometry, with a cumulative standing of not less than 2.0 on a 4.0 scale. In all departments the course requirements exceed this 128 hour minimum.

3. be admitted to engineering standing in an engineering program for at least the final semester, and complete the requirements of that program.

4. complete a minimum of 24 credit hours of departmental courses at or above the 300 level.

5. complete all departmental courses and technical electives with a cumulative standing of 2.0 or higher.

6. complete any additional departmental graduation requirements that may be listed below.

### Additional Departmental Graduation Requirements

In the B.S. program in Civil Engineering, the student must have earned a grade of C or better in each civil engineering course to be credited toward satisfying the degree requirements.

In the Mining Engineering Department, the student must have earned a grade of C or better in the following courses that are valuable for safe operation of mines: MNG 341, Mine Ventilation; MNG 551, Rock Mechanics; MNG 591, Mine Design Project I; and MNG 592, Mine Design Project II.

### Second Bachelor's Degree Requirements

A student who has earned a bachelor's degree in the College of Engineering may earn a second bachelor's degree by meeting the following three conditions on the work applicable to the second degree:

1. The student must have been admitted to engineering standing in the program leading to the second degree at least for the final semester, or equivalent terms, prior to the completion of the degree requirements, and must be enrolled as a student in that degree program during the final semester or term. No student can be simultaneously enrolled in two degree programs.

2. The student must complete a minimum of 15 credit hours of departmentally approved courses at or above the 300 level.

3. To earn a second degree, a student must complete all degree requirements in that program.

### University Studies and ABET Requirements

While satisfying the University Studies requirements, engineering students must also meet the Accreditation Board for Engineering and Technology (ABET) requirement in humanistic-social studies. This 18-hour requirement can be satisfied with courses selected from University Studies areas III-B, III-C, V, and some courses in area IV. Students should work closely with their advisers to insure proper completion of this requirement.

### Academic Advising

Academic advising is provided by faculty in the department of the student's major. Professional staff are also assigned to provide counseling and advice to entering freshmen. New students are notified during the summer prior to their enrollment of their adviser's name, office location, and phone number. It is the student's responsibility to satisfy University and College requirements with consultation from their adviser.

## PROBATION AND ACADEMIC SUSPENSION

Students (with the current exception of computer science majors) should refer to the *Academic Requirements* section of this Bulletin for information concerning the College of Engineering's probation and academic suspension rules.

## BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

Agricultural engineering provides an essential link between the biological sciences and the engineering profession. This linkage is necessary for the development of food and fiber production and processing systems which preserve our natural resource base. Students enrolling in the agricultural engineering program have the latitude to develop an area of specialization.

Engineers completing this program of study find employment in industries that produce equipment for production and processing of biological products. Opportunities include placement with manufacturers of agricultural machinery; grain drying and handling equipment; heating, ventilation and refrigeration equipment; food processing equipment; livestock equipment and housing; and greenhouse structures and equipment. Recent graduates have also found employment within the food processing industry in plant and process engineering. Additional opportunities exist for employment with state and federal regulatory agencies, and in consulting firms that provide engineering services. Program graduates also find this curriculum attractive as preparation for graduate and advanced professional degree programs.

The curriculum in agricultural engineering is administered jointly by the College of Engineering and College of Agriculture.

### Degree Requirements

The following curriculum meets the requirements for a B.S. in agricultural engineering, provided the student satisfies the graduation requirements listed earlier.

#### Freshman Year

| First Semester | Hours |
|---|---|
| ENG 101 Writing I | 3 |
| MA 113 Calculus I | 4 |
| CHE 105 General College Chemistry I | 3 |
| AEN 102 Introduction to Biosystems Engineering | 1 |
| BIO 150 Principles of Biology I | 3 |
| University Studies* (suggested: GEN 101) | 3 |
| **Second Semester** | |
| MA 114 Calculus II | 4 |
| CHE 107 General College Chemistry II | 3 |
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| CS 221 First Course in Computer Science for Engineers | 2 |
| ENG 102 Writing II | 3 |

#### Sophomore Year

| First Semester | Hours |
|---|---|
| AEN 202 Biosystems Engineering Problems | 2 |
| MA 213 Calculus III | 4 |
| PHY 232 General University Physics | 4 |
| PHY 242 General University Physics Laboratory | 1 |
| EM 221 Statics | 3 |
| BIO 152 Principles of Biology II | 3 |
| **Second Semester** | |
| MA 214 Calculus IV | 3 |
| ME 220 Engineering Thermodynamics I | 3 |
| EM 302 Mechanics of Deformable Solids | 3 |
| EM 303 Deformable Solids Laboratory | 1 |
| COM 199 Presentational Communication Skills | 1 |
| BIO 208 Principles of Microbiology | 3 |
| University Studies* (suggested: GEN 102) | 3 |

#### Junior Year

| First Semester | Hours |
|---|---|
| ME 330 Fluid Mechanics | 3 |
| AEN 302 Analytical and Numerical Methods for Biosystems | 3 |
| EE 307 Circuit Analysis with Applications | 4 |
| AEN 308 Engineering Properties of Biological Materials | 3 |
| ME 105 Basic Engineering Graphics | 2 |
| University Studies* | 3 |
| **Second Semester** | |
| AEN 343 Fluid Mechanics of Biosystems | 3 |
| AEN 402 Dynamics of Biological Systems | 3 |
| AEN 301 Microelectronic Applications in Biosystems Engineering | 2 |
| Technical Electives*** | 6 |
| University Studies* | 3 |

#### Senior Year

| First Semester | Hours |
|---|---|
| AEN 400 Senior Seminar in Agricultural Engineering | 1 |
| AEN 401 Design in Agricultural Engineering | 4 |
| AEN 407 Economic Analysis of Biosystems | 2 |
| Technical Electives*** | 6 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| University Studies* | 3 |
| Technical Electives*** | 9 |
| Supportive Elective** | 3 |

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**Supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses such as precalculus mathematics or PHY 211.

***A minimum of 21 hours to be selected in consultation with the student's academic adviser from a list of courses approved by the Agricultural Engineering Department. At least 11 of these hours must be in course material classified as engineering science and at least four hours must be in material classified as engineering design. Students selecting The Food and Bioprocess Engineering option of Agricultural Engineering must complete CHE 115 and four additional hours of technical electives beyond the specified 21 hours. This is to insure that the student meets the minimum requirements for a Food Engineering program as specified by the American Society of Agricultural Engineers.

**Technical Electives:** These courses offer the student an opportunity to concentrate or gain depth in one or more of the various specialty areas of agricultural engineering. They must be selected from the courses listed below and approved by the student's academic adviser. Other courses may be considered, each on its individual merit. In selecting technical electives students must concentrate their work in one or more of the professional areas of agricultural engineering. These areas include: bio-environmental engineering, food and bioprocess engineering, machine systems, automation engineering and thermal environmental engineering. Interested students are encouraged to contact the Department of Agricultural Engineering to discuss technical elective sequences.

Approved technical electives: AEN 406G, 417G, 435G, 438G, 450, 480G, 505, 513, 515, 536, 537, 549, 550, 599; AGR 366, 566, 575, 576; CE 381, 382, 441, 451, 461G, 482, 506, 542, 549; CHE 236; CME 205, 210, 425, 462; EE 402G; EM 313, 513, 531; FSC 434G, 530, 536, 538; ME 321, 325, 340, 344, 440, 501, 506, 529, 542.

## BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

A foundation in mathematics, chemistry, and physics is required for the study of chemical engineering. Fundamental principles related to the transformations of matter and energy are developed in areas such as thermodynamics, mass transfer, reactor design, and chemical process design. Undergraduate elective options are available in energy engineering and environmental protection. A program is also available to fulfill premedical and predental requirements simultaneously with requirements for the B.S. in chemical engineering.

### Degree Requirements

The following curriculum meets requirements for the B.S. in chemical engineering, provided the student satisfies the graduation requirements listed earlier.

**Freshman Year**

| First Semester | Hours |
|---|---|
| CME 101 Introduction to Chemical Engineering | 1 |
| CHE 105 General College Chemistry I | 3 |
| ENG 101 Writing I | 3 |
| MA 113 Calculus I | 4 |
| University Studies* | 3 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| CME 002 The Engineering Profession | 0 |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| ENG 102 Writing II | 3 |
| MA 114 Calculus II | 4 |
| CS 221 First Course in Computer Science for Engineers | 2 |
| COM 199 Presentational Communication Skills | 1 |

**Sophomore Year**

| First Semester | Hours |
|---|---|
| CME 205 Process Principles I | 2 |
| CHE 230 Organic Chemistry I | 3 |
| MA 213 Calculus III | 4 |
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| CME 210 Process Principles II | 2 |
| CHE 235 Special Organic Laboratory | 1 |
| CHE 232 Organic Chemistry II | 3 |
| MSE 201 Materials Science | 3 |
| MA 214 Calculus IV | 3 |
| PHY 232 General University Physics | 4 |

**Junior Year**

| First Semester | Hours |
|---|---|
| CME 320 Engineering Thermodynamics | 3 |
| CME 420 Process Modeling in Chemical Engineering | 3 |
| CME 471 Seminar | 1 |
| CHE 440G Physical Chemistry | 3 |
| ME 330 Fluid Mechanics | 3 |
| Supportive Elective** | 3 |

**Second Semester**

| | |
|---|---|
| CME 006 The Engineering Profession (Junior and Senior) | 0 |
| CME 415 Separation Processes | 3 |
| CME 425 Heat and Mass Transfer | 4 |
| CHE 441G Physical Chemistry Laboratory | 2 |
| University Studies* | 6 |
| Technical Elective | 3 |

**Senior Year**

| First Semester | Hours |
|---|---|
| CME 006 The Engineering Profession (Junior and Senior) | 0 |
| CME 470 Professionalism, Ethics and Safety | 1 |
| CME 433 Chemical Engineering Laboratory | 3 |
| CME 455 Chemical Engineering Process Design I | 3 |
| CME 550 Chemical Reactor Design | 3 |
| Elective (CME) | 3 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| CME 006 The Engineering Profession (Junior and Senior) | 0 |
| CME 456 Chemical Engineering Process Design II | 4 |
| CME 462 Process Control | 3 |
| CME 570 Chemical Separation and Measurement for Chemical Engineers | 4 |
| EE 305 Electrical Circuits and Electronics | 3 |
| Elective (CME) | 3 |

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**Supportive elective is to be chosen from any University course, excluding a more elementary version of a required course, such as precalculus mathematics or PHY 211.

**CME Electives:** Courses recommended as Chemical Engineering electives are listed below. Other courses will be considered, each on its individual merit.

CME 395 Special Problems in Chemical Engineering
CME 505 Analysis of Chemical Engineering Problems
CME 515 Air Pollution Control
CME 552 Polymeric Materials
CME 554 Chemical and Physical Processing of Polymer Systems
CME 558 Principles of Polymer Characterization and Analysis
CME 580 Design of Rate and Equilibrium Processes for Water Pollution Control
CME 599 Topics in Chemical Engineering

## BACHELOR OF SCIENCE IN CIVIL ENGINEERING

The student of civil engineering has a broad field of study to provide a strong foundation for entry into the profession or graduate school. Major areas include construction engineering, environmental engineering, geotechnical engineering, materials engineering, structural engineering, transportation engineering, and water resources engineering.

### Degree Requirements

The following curriculum meets the requirements for a B.S. in civil engineering, provided the student satisfies the graduation requirements listed earlier.

**Freshman Year**

| First Semester | Hours |
|---|---|
| CE 121 Introduction to Civil Engineering Systems | 3 |
| CHE 105 General College Chemistry I | 3 |
| ENG 101 Writing I | 3 |
| MA 113 Calculus I | 4 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| CE 106 Computer Graphics and Communication | 3 |
| CHE 107 General College Chemistry II | 3 |
| ENG 102 Writing II | 3 |
| MA 114 Calculus II | 4 |
| University Studies* | 3 |

**Sophomore Year**

| First Semester | Hours |
|---|---|
| CS 223 Computer Science for Civil Engineers | 2 |
| MA 213 Calculus III | 4 |
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| Surveying Elective** | 4 |
| University Studies* | 3 |

**Second Semester**

| | |
|---|---|
| EM 221 Statics | 3 |
| MA 214 Calculus IV | 3 |
| ME 220 Engineering Thermodynamics I | 3 |
| PHY 232 General University Physics | 4 |
| PHY 242 General University Physics Laboratory | 1 |
| University Studies* | 3 |

**Junior Year**

| First Semester | Hours |
|---|---|
| CE 331 Transportation Engineering | 3 |
| CE 341 Fluid Mechanics I | 3 |
| EM 302 Mechanics of Deformable Solids | 3 |
| EM 303 Deformable Solids Laboratory | 1 |

GLY 240 Elementary Geology for Engineers ..... 3
University Studies* ..... 3

**Second Semester**

CE 303 Introduction to Construction Engineering ..... 3
CE 381 Civil Engineering Materials ..... 3
CE 382 Structural Mechanics ..... 3
CE 421 Civil Engineering Systems Analysis ..... 3
CE 441 Fluid Mechanics II ..... 3
CE 471G Soil Mechanics ..... 3

**Senior Year**

| **First Semester** | **Hours** |
|---|---|
| CE 401 Seminar | 1 |
| CE 451 Water Quality Engineering | 3 |
| CE 461G Hydrology | 3 |
| EM 313 Dynamics | 3 |
| Structures Elective† | 3 |
| Technical Elective*** | 3 |

**Second Semester**

| | |
|---|---|
| System Design Elective†† | 4 |
| Supportive Elective††† | 3 |
| Technical Electives*** | 6 |
| University Studies* | 3 |

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**The surveying elective is CE 211.

***The technical electives are to be chosen from any of the courses at the 300-level or above which carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. EM 513 and 531 are also acceptable.

†The structures elective is to be chosen from the following: CE 482, 486G or 487G.

††The system design elective is to be chosen from the following: CE 539, 569 or 589.

†††The supportive elective is to be chosen from any University course excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

## BACHELOR OF SCIENCE IN COMPUTER SCIENCE

The Department of Computer Science joined the College of Engineering in summer 1994. The department is reviewing its admission policy and degree requirements. During this review period, all the current degree requirements, including the college component, remain as they were when the department was a part of the College of Arts and Sciences.

When the requirements for an undergraduate degree program are changed after a student has enrolled in it, the student has the option of fulfilling the old requirements or the new requirements. The student should consult the "Change in Program Requirements" section of this Bulletin for details. It is recommended that students contact the department for more information about the degree requirements.

### Admissions Policy

The Computer Science program comprises a lower division component and an upper division component. Admission to the University of Kentucky and to the College of Engineering is sufficient for admission to the lower division component of the program. Five computer science courses are available to students in the lower division: CS 121, 122, 250, 270, and CS 245. Successful completion of lower division course work does **not** guarantee admission to the upper division of the Computer Science program.

Applicants seeking admission to the upper division will be judged on the criteria listed below. The number of students admitted each year depends upon the availability of resources—faculty, space, computing equipment—for the implementation of a high quality program.

### Upper Division Admission

In order to be eligible for consideration for admission to the upper division, a student must fulfill the following requirements:

1. Enrollment in, or, in the case of transfer students, acceptance for admission to the University of Kentucky;

2. Completion of 60 semester hours including the University Writing requirement;

3. Completion of the required lower division courses CS 121, 122, 250, 270, CS 245, MA 113, 114, and 213, with a minimum grade-point average of 2.5;

4. Applicants from non-English speaking countries are required to take the Test of English as a Foreign Language (TOEFL) and must attain a minimum score of 550;

5. Submission of an application form, accompanied by a current official transcript and a course plan indicating that the course requirements set forth in 2. and 3. above will be satisfied prior to admission to the upper division.

Those applicants with a minimum grade-point average of 3.0 in the required lower division CS/MA courses will be admitted automatically. Applicants with a grade-point average of less than 2.5 in the lower division courses will be rejected for admission. Other applicants will be considered for admission as resources permit. A student who has been denied admission will have the right to appeal the decision to the department.

Applications must be received no later than **March 1** for admission for the fall semester and/or summer sessions. For spring semester admission, the application must be received by **October 1**.

### Degree Requirements

In addition to satisfying University Studies requirements and the College of Arts and Sciences requirements, each student completes the following:

**Lower Division Requirements**

| **Premajor Courses** | **Hours** |
|---|---|
| CS 121 Computer Science I | 4 |
| CS 122 Computer Science II | 4 |
| MA 113 Calculus I | 4 |
| MA 114 Calculus II | 4 |

**Additional Lower Division Courses**

| | |
|---|---|
| MA 213 Calculus III | 4 |
| CS 245 Introduction to Logic and Discrete Computer Mathematics | 3 |
| CS 250 Computer Organization | 3 |
| CS 270 File Processing | 3 |

### Upper Division Requirements

Upon admission to the upper division, students must complete the following requirements:

**Requirement One**

| **Hours** | |
|---|---|
| STA 281 Probability and Statistics Using Interactive Computer Techniques* | 3 |
| CS 340 Discrete Structures in Computer Science | 3 |
| CS 370 Data Structures | 3 |

*Option I students may substitute STA/MA 320 and STA 321.

**Requirement Two**

**For Options I, II, and III**

| | |
|---|---|
| PHY 231/232 General University Physics | 8 |
| PHY 241/242 General University Physics Laboratory | 2 |
| CS/MA 321 Introduction to Numerical Methods | 3 |
| CS 470G Systems Software | 3 |

**For Option IV**

| | |
|---|---|
| ECO 201/202 Principles of Economics I and II | 6 |
| ACC 201/202 Principles of Accounting | 6 |

**Requirement Three**

Students must complete one of the following options:

*Option I: Scientific Applications Specialization*

| **Hours** | |
|---|---|
| MA 322 Matrix Algebra and Its Applications | 3 |
| CS/MA 422 Numerical Solutions of Equations | 3 |
| Additional upper-division computer science courses | 6 |
| Additional upper-division MA or STA courses | 6 |

(Students taking STA/MA 320 and STA 321 in place of STA 281 may include STA 321 in this requirement.)

| *Option II: Software Specialization* | **Hours** |
|---|---|
| CS 420G Compilers for Algorithmic Languages | 3 |
| CS 440 Foundations of Computing | 3 |
| Additional upper-division CS courses including at least two of the following: | |
| EE 280, CS 450G, 505, 580 | 12 |

| *Option III: Hardware Specialization* | **Hours** |
|---|---|
| CS 420G Compilers for Algorithmic Languages | 3 |
| CS 440 Foundations of Computing | 3 |
| EE 280 Design of Logic Circuits | 3 |
| EE 581 Advanced Logical Design | 3 |
| EE 583 Microprocessors | 3 |
| CS/EE 587 Microcomputer Systems Design | 3 |

| *Option IV: Business Specialization* | **Hours** |
|---|---|
| CS 505 Database Management Systems | 3 |
| CS 580 Algorithm Design | 3 |
| MA 416G Principles of Operations Research I | 3 |
| ACC 301 Intermediate Accounting I | 3 |
| FIN 300 Corporation Finance | 3 |
| MGT 301 Business Management | 3 |
| MKT 300 Marketing Management | 3 |
| Additional upper division CS course | 3 |

### Cooperative Education

Qualified students who major in computer science may participate in the Mathematical Sciences Cooperative Education Program which provides the opportunity for alternate semesters of academic study and full-time employment in busi-

ness or industry. Guidelines and application forms are available in the Engineering/Math Sciences Co-op Program Office, 775 Anderson Hall.

### Minor in Computer Science

CS 121 Computer Science I ..... 4
CS 122 Computer Science II ..... 4
CS 245 Introduction to Logic and Discrete Computer Mathematics ..... 3
CS 250 Computer Organization ..... 3
CS 270 File Processing ..... 3
CS 370 Data Structures ..... 3
**plus** three additional hours in computer science ... 3

## BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

The Electrical Engineering program includes courses dealing with the analysis and design of equipment ranging from electronic circuits and systems to machinery and optical devices. Fundamentals of communication theories, electronic devices, quantum electronic devices, computers, digital engineering, and fields and waves are also concerns of the program.

### Degree Requirements

The following curriculum meets the requirements for a B.S. in electrical engineering, provided the student satisfies the graduation requirements listed earlier.

#### Freshman Year

**First Semester** **Hours**
EE 101 Electrical Engineering Professions Seminar ..... 1
MA 113 Calculus I ..... 4
CHE 105 General College Chemistry I ..... 3
CS 222 Computer Science for Electrical Engineers ..... 3
ENG 101 Writing I ..... 3
University Studies* ..... 3

**Second Semester**
MA 114 Calculus II ..... 4
CHE 107 General College Chemistry II ..... 3
PHY 231 General University Physics ..... 4
PHY 241 General University Physics Laboratory ..... 1
ENG 102 Writing II ..... 3

#### Sophomore Year

**First Semester** **Hours**
MA 213 Calculus III ..... 4
PHY 232 General University Physics ..... 4
PHY 242 General University Physics Laboratory ..... 1
EE 211 Circuits I ..... 4
University Studies Oral Communication ..... 3

**Second Semester**
MA 214 Calculus IV ..... 3
EE 221 Circuits II ..... 3
EE 222 Electrical Engineering Laboratory I ..... 2
Engineering/Science Elective (A)†† ..... 3
EE 280 Design of Logic Circuits ..... 3
University Studies* ..... 3

#### Junior Year

**First Semester** **Hours**
EE 415G Electromechanics ..... 3
EE 416G Energy Conversion Laboratory **or**
EE 481 Logical Design Laboratory ..... 2
EE 421G Signals and Systems I ..... 3
EE 461G Introduction to Electronics ..... 3
EE 380 Computer Organization ..... 3
Mathematics Selection† ..... 3

**Second Semester**
Engineering/Science Elective (B)†† ..... 3
EE 462G Electronic Circuits Laboratory ..... 2
EE 468G Fields and Waves ..... 4
Engineering/Science Elective (A/B)†† ..... 3
University Studies* ..... 3
EE 422G Signals and Systems II ..... 3

#### Senior Year

**First Semester** **Hours**
Technical Elective††† ..... 3
Engineering/Science Elective (A/B)†† ..... 3
Electrical Engineering Technical Electives** ..... 6
University Studies* ..... 6

**Second Semester**
EE 499 Electrical Engineering Design ..... 3
Electrical Engineering Technical Electives** ..... 6
Supportive Elective*** ..... 3
University Studies* ..... 3

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**All electrical engineering technical electives are to be selected from EE 500-level electrical engineering courses in consultation with the academic adviser: EE 511, 512, 517, 518, 522, 523, 527, 530, 537, 538, 560, 561, 562, 564, 565, 567, 568, 571, 572, 581, 583, 585, 587, 599.

***Supportive elective is to be chosen from any University courses, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

†To be selected from MA 320, 321, 322.

††Engineering/Science elective to be chosen in consultation with the academic adviser from Group A/MSE 212, ME 220, EM 221, 230 (cannot take if have credit in EM 221), ME 330, EM 313; Group B/CS 270, 370, PHY 361, MA 432G, 433G.

†††The technical elective may be selected from upper division engineering, mathematics, statistics, computer science, physics, or other technically-related fields in consultation with the academic adviser.

**Engineering/Science Electives:** Group A/MSE 212; ME 220, 330; EM 221, 230, 313. Group B/CS 270, 370; PHY 361; MA 432G, 433G.

**EE Technical Electives:** Courses recommended as electrical engineering technical electives are listed below.

EE 511 Introduction to Communication Systems
EE 512 Digital Communication Systems
EE 517 Advanced Electromechanics
EE 518 Electric Drives
EE 522 Antenna Design
EE 523 Microwave Circuit Design
EE 527 Electromagnetic Compatibility
EE 530 Robotics
EE 537 Electric Power Systems I
EE 538 Electric Power Systems II
EE 560 Semiconductor Device Design
EE 561 Electric and Magnetic Properties of Materials
EE 562 Analog Electronic Circuits
EE 564 Digital Electronic Circuits
EE 565 Circuit Design With Analog Integrated Circuits
EE 567 Introduction to Lasers and Masers
EE 568 Fiber Optics
EE 571 Feedback Control Design
EE 572 Digital Control of Dynamic Systems
EE 581 Advanced Logical Design
EE 583 Microprocessors
EE 585 Fault Tolerant Computing
EE 587 Microcomputer Systems Design
EE 599 Topics in Electrical Engineering (subtitle required)

## ENGINEERING MECHANICS

The Department of Engineering Mechanics teaches undergraduate courses in the general area of solid mechanics, some of which are required in the curricula in the other engineering departments. Others are available as technical electives. Although there is no baccalaureate degree program in the department, graduate programs leading to the M.S. and Ph.D. degrees are available. Students should consult The *Graduate School Bulletin* for more information.

## BACHELOR OF SCIENCE IN MATERIALS ENGINEERING

The materials engineer is responsible for the preparation, fabrication, selection, use and reuse of existing materials and for the development of new and improved materials. The professional in this field is being called on more and more to consider nonmetallic materials as well as metals. The engineer considers chemical, electronic, magnetic, optical, and mechanical properties of materials.

### Degree Requirements

The following curriculum meets the requirements for a B.S. in materials engineering, provided the student satisfies the graduation requirements listed earlier.

#### Freshman Year

**First Semester** **Hours**
MSE 101 Materials Engineering ..... 1
CHE 105 General College Chemistry I ..... 3
ENG 101 Writing I ..... 3
MA 113 Calculus I ..... 4
ME 105 Basic Engineering Graphics ..... 2
University Studies* ..... 3

**Second Semester**
MSE 102 Metals Technology ..... 1
CHE 107 General College Chemistry II ..... 3
CHE 115 General Chemistry Laboratory ..... 3
MA 114 Calculus II ..... 4
ENG 102 Writing II ..... 3
CS 221 First Course in Computer Science for Engineers ..... 2

#### Sophomore Year

**First Semester** **Hours**
MSE 201 Materials Science ..... 3
CME 205 Process Principles I ..... 2
MA 213 Calculus III ..... 4
PHY 231 General University Physics ..... 4
PHY 241 General University Physics Laboratory ..... 1
University Studies* ..... 3

**Second Semester**
MSE 361 Structure and Properties of Materials I ..... 4
CME 210 Process Principles II ..... 2
EM 221 Statics ..... 3
MA 214 Calculus IV ..... 3
PHY 232 General University Physics ..... 4
PHY 242 General University Physics Laboratory ..... 1

**Junior Year**

| First Semester | Hours |
|---|---|
| MSE 362 Structure and Properties of Materials II | 4 |
| MSE 451 Materials Thermodynamics† | 3 |
| EM 302 Mechanics of Deformable Solids | 3 |
| COM 181 Basic Public Speaking | 3 |
| STA 381 Introduction to Engineering Statistics**** | 3 |
| **Second Semester** | |
| MSE 536 Ceramic Engineering | 3 |
| PHY 361 Principles of Modern Physics | 3 |
| CE 521 Engineering Economy | 3 |
| MSE 450 Transport Phenomena for Materials Engineers | 3 |
| University Studies* | 3 |
| Supportive Elective†† | 3 |

**Senior Year**

| First Semester | Hours |
|---|---|
| MSE 535 Mechanical Properties of Materials | 3 |
| CHE 236 Survey of Organic Chemistry | 3 |
| EE 305 Electrical Circuits and Electronics | 3 |
| University Studies* | 6 |
| Materials Elective** | 3 |
| **Second Semester** | |
| MSE 480 Materials Design | 3 |
| MSE 512 Electronic Materials and Processing | 3 |
| MSE 552 Polymeric Materials | 3 |
| University Studies* | 3 |
| Materials Elective*** | 4 |
| CHE 235 Special Organic Laboratory | 1 |

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**Select from the following courses: MSE/EM 506, MSE 531, MSE 550, MSE 554, MSE/EE 561, MSE 568, MSE 580, MSE 599.

***Select from the following courses: MSE 421, MSE 538, MSE 542, MSE/EM 556.

****Can be substituted with other math and statistics courses on consultation with academic adviser.

†CME 320 may be substituted.

††Supportive elective is any university course, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

## BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The training of the mechanical engineer is the broadest among the several fields of engineering. The mechanical engineer uses the techniques of mathematics combined with a specialized knowledge of the thermal and energy sciences, solid and fluid mechanics, and the properties of materials. This information is supplemented by an understanding of manufacturing processes, the design and control of systems, and the economics of the technological community.

### Degree Requirements

The following curriculum meets the requirements for a B.S. degree in mechanical engineering, provided the student satisfies the graduation requirements listed earlier.

**Freshman Year**

| First Semester | Hours |
|---|---|
| ME 101 Orientation to Mechanical Engineering (Freshman and Transfer Student) | 1 |
| ME 105 Basic Engineering Graphics | 2 |
| CHE 105 General College Chemistry I | 3 |
| MA 113 Calculus I | 4 |
| ENG 101 Writing I | 3 |
| University Studies* | 3 |
| **Second Semester** | |
| ME 151 Manufacturing Engineering | 3 |
| CHE 107 General College Chemistry II | 3 |
| University Studies* | 3 |
| MA 114 Calculus II | 4 |
| ENG 102 Writing II | 3 |

**Sophomore Year**

| First Semester | Hours |
|---|---|
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| MA 213 Calculus III | 4 |
| CS 221 First Course in Computer Science for Engineers | 2 |
| University Studies* | 3 |
| COM 181 Basic Public Speaking | 3 |
| **Second Semester** | |
| ME 220 Engineering Thermodynamics I | 3 |
| PHY 232 General University Physics | 4 |
| PHY 242 General University Physics Laboratory | 1 |
| MA 214 Calculus IV | 3 |
| EM 221 Statics | 3 |
| University Studies* | 3 |

**Junior Year**

| First Semester | Hours |
|---|---|
| ME 321 Engineering Thermodynamics II | 3 |
| ME 330 Fluid Mechanics | 3 |
| EM 302 Mechanics of Deformable Solids | 3 |
| EM 313 Dynamics | 3 |
| MSE 201 Materials Science | 3 |
| University Studies* | 3 |
| **Second Semester** | |
| ME 310 Engineering Experimentation I | 3 |
| ME 344 Mechanical Design | 3 |
| ME 325 Elements of Heat Transfer | 3 |
| ME 340 Introduction to Mechanical Systems | 3 |
| Technical Elective** | 3 |

**Senior Year**

| First Semester | Hours |
|---|---|
| ME 407 Engineering Ethics | 1 |
| ME 311 Engineering Experimentation II | 3 |
| ME 440 Design of Control Systems | 3 |
| Mathematics Elective** | 3 |
| ME 347 Dynamic Analysis of Design Problems | 3 |
| Technical Elective** | 3 |
| **Second Semester** | |
| ME 408 Safety Engineering | 2 |
| ME 412 Senior Design Project | 3 |
| EE 307 Circuit Analysis with Applications | 4 |
| Technical Elective** | 3 |
| Supportive Elective*** | 3 |
| University Studies* | 3 |

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**All electives to be selected in consultation with the academic adviser.

***The supportive elective is to be chosen from any University course, excluding more elementary versions of required courses such as precalculus mathematics or PHY 211.

**Technical Electives:** Students should select from the list below.

ME 346 Mechanical Systems Design
ME 358 Economic Analysis of Mechanical Systems
ME 359 Management Engineering
ME 366 Thermal Power Systems
ME 380 Topics in Mechanical Engineering
ME 395 Independent Work in Mechanical Engineering
ME 448 Case Studies in Mechanical Design
ME 475G Introduction to Nuclear Engineering
ME 480G Heating, Ventilating and Air-Conditioning
ME 501 Mechanical Design with Finite Element Methods
ME 506 Computer-Aided Graphics and Design
ME 510 Dynamics and Design of Robot Manipulators
ME 514 Nuclear Reactor Analysis and Fuel Management
ME 529 Applied Fluid Mechanics
ME 530 Gas Dynamics
ME 531 Fluid Dynamics I
ME 540 Analysis and Simulation of Dynamic Systems
ME 542 Kinematic Synthesis of Mechanisms
ME 543 Kinematics of Machinery
ME 550 Applications of Heat Transfer
ME 560 Engineering Optics
ME 563 Basic Combustion Phenomena
ME 564 Propulsion System Design
ME 566 Direct Energy Conversion Processes
ME 568 Solar Energy Systems
ME 583 Biotechnology
ME 590 Elements of Aerospace Technology
ME 599 Topics in Mechanical Engineering
EGR 599 Topics in Engineering
EM 513 Mechanical Vibrations
EM 531 Advanced Strength of Materials

## BACHELOR OF SCIENCE IN MINING ENGINEERING

Mining engineering requires the broadest knowledge of sciences and other fields of engineering in its practice after graduation. The curriculum below prepares the student for a career in the field of mining.

### Degree Requirements

The following curriculum meets the requirements for a B.S. in mining engineering, provided the student satisfies the graduation requirements listed earlier.

**Freshman Year**

| First Semester | Hours |
|---|---|
| CHE 105 General College Chemistry I | 3 |
| MA 113 Calculus I | 4 |
| ENG 101 Writing I | 3 |
| ME 105 Basic Engineering Graphics | 2 |
| MNG 101 Introduction to Mining Engineering | 1 |
| University Studies* | 3 |
| **Second Semester** | |
| CHE 107 General College Chemistry II | 3 |
| MA 114 Calculus II | 4 |
| MNG 102 Elements of Mining Engineering | 2 |
| PHY 231 General University Physics | 4 |
| PHY 241 General University Physics Laboratory | 1 |
| ENG 102 Writing II | 3 |

**Sophomore Year**

| First Semester | Hours |
|---|---|
| MNG 211 Surveying | 4 |
| EM 221 Statics | 3 |

CS 221 First Course in Computer Science for Engineers ..... 2
MA 213 Calculus III ..... 4
PHY 232 General University Physics ..... 4
PHY 242 General University Physics Laboratory ... 1

**Second Semester**

ECO 201 Principles of Economics I ..... 3
MNG 332 Mine Plant Machinery ..... 3
ME 220 Engineering Thermodynamics I ..... 3
MA 214 Calculus IV ..... 3
EM 302 Mechanics of Deformable Solids ..... 3
EM 303 Deformable Solids Laboratory ..... 1
COM 199 Presentational Communication Skills .... 1

**Junior Year**

| First Semester | Hours |
|---|---|
| CE 341 Fluid Mechanics I | 3 |
| GLY 240 Elementary Geology for Engineers | 3 |
| MNG 302 Minerals Processing Laboratory | 1 |
| STA 381 Introduction to Engineering Statistics | 3 |
| MNG 301 Minerals Processing | 3 |
| University Studies* | 3 |

**Second Semester**

EE 306 Electrical Circuits and Machinery ..... 3
EM 313 Dynamics ..... 3
MNG 341 Mine Ventilation ..... 3
GLY 420G Structural Geology ..... 4
MNG 463 Surface Mining Operations ..... 3
University Studies* ..... 3

**Senior Year**

| First Semester | Hours |
|---|---|
| MNG 551 Rock Mechanics | 4 |
| MNG 431 Mine Systems Engineering | 3 |
| MNG 371 Seminar | 1 |
| MNG 464 Underground Mining Operations | 3 |
| MNG 591 Mine Design Project I | 1 |
| Technical Elective*** | 3 |
| University Studies* | 3 |

**Second Semester**

MNG 592 Mine Design Project II ..... 2
Technical Electives*** ..... 9
University Studies* ..... 3
Supportive Elective** ..... 3

*To be selected from University Studies areas in Social Sciences, Humanities, Cross-Cultural and Cross-Disciplinary in consultation with the academic adviser. A minimum of 18 credits in the humanities and social sciences are required with sufficient depth (two six-credit disciplinary groups or one nine-credit disciplinary group) to satisfy ABET criteria. These ABET criteria must be satisfied in conjunction with the Social Sciences, Humanities, Cross-Cultural, Cross-Disciplinary, and language requirements of University Studies.

**The supportive elective is to be chosen from any University course excluding more elementary versions of required courses such as precalculus mathematics.

***Courses recommended as technical electives are listed below. These courses must be chosen with the approval of the student's adviser to ensure that the curriculum includes sufficient engineering design content. MNG 222, 312, 395, 490G, 561, 563, 572, 575, 581, 599; AEN 437G; AGR 501; CE 331, 381, 382, 441, 471G, 485G, 521; GLY 450G, 515; PLS 366.

**Technical Electives:** Of the four technical electives in the undergraduate program, students are required to select at least three from departmental courses. The remaining course, chosen with the approval of the student's adviser, often can be used to fulfill specific educational goals.

MNG 222 Mine Law and Safety
MNG 312 Computer Methods in Mining Engineering
MNG 395 Independent Work in Mining Engineering
MNG 490G Explosives and Blasting Engineering
MNG 561 Mine Construction Engineering I
MNG 563 Simulation of Mine Production Systems
MNG 572 Advanced Coal Preparation
MNG 575 Coal Preparation Design
MNG 581 Mine Valuation and Geostatistics
MNG 599 Topic in Mining Engineering
AGR 501 Reclamation of Disturbed Land
CE 331 Transportation Engineering
CE 381 Civil Engineering Materials
CE 382 Structural Mechanics
CE 441 Fluid Mechanics II
CE 471G Soil Mechanics
CE 485G Design of Timber Structures, Formwork and Falsework
CE 521 Engineering Economy
GLY 450G Stratigraphy and Sedimentation
GLY 515 General Coal Geology
PLS 366 Fundamentals of Soil Science

# FINE ARTS

*Rhoda-Gale Pollack, Ph.D., is Dean of the College of Fine Arts.*

The College of Fine Arts was established in September 1976 and includes the Department of Art, the Department of Theatre, the School of Music, and the Otis A. Singletary Center for the Arts.

## Accreditation

### School of Music

The School of Music is accredited by the National Association of Schools of Music (NASM).

## Undergraduate Programs in Fine Arts

The University of Kentucky grants the following degrees in the College of Fine Arts:

- Bachelor of Arts
- Bachelor of Fine Arts
- Bachelor of Music
- Bachelor of Music in Music Education

Students pursuing the Bachelor of Arts may select from these majors: art education, art history, art studio, music, theatre, arts administration, or individual study.

Students selecting the Bachelor of Fine Arts may select from these majors: art studio or theatre.

Students pursuing the Bachelor of Music major in music performance.

The college also offers several graduate programs, which are described in *The Graduate School Bulletin*.

## Departmental Minors

Students from any college may choose to have an interdisciplinary minor in the arts, or to minor in art history, art studio, music (music theory and history or performance), or theatre. Requirements for these minors may be found under the departmental listings.

## Financial Aid

### Department of Art

The University of Kentucky art department and the Office of Minority Affairs will award the Isaac Hathoway Scholarship in the Visual Arts to an incoming African-American freshman student majoring in art studio, art education, art history, or arts administration. For more information on this four-year scholarship, contact the Art Department, 207 Fine Arts Building, University of Kentucky, Lexington, KY 40506-0022. Or call (606) 257-8151.

### School of Music

The School of Music has a number of performance based grants-in-aid and scholarships. Talented singers and instrumentalists should contact the School of Music, Office of Student Affairs for further information. Call (606) 257-8181 or write c/o 103A Fine Arts Building, University of Kentucky, Lexington, KY 40506-0022.

### Department of Theatre

A number of scholarships are available from the Department of Theatre. For further information, call (606) 257-3297. Or write c/o 114 Fine Arts Building, University of Kentucky, Lexington, KY 40506-0022.

### Arts Administration Program

Scholarships are available to students currently enrolled in the Arts Administration program. Contact the Director of the Arts Administration Program for application information, or call (606) 257-1709.

## Requirements for the Bachelor of Arts Degree

Students who wish to pursue the Bachelor of Arts degree within the College of Fine Arts must fulfill the following requirements:

### University Requirements

All students must fulfill University Studies requirements. Students should work closely with advisers in selecting courses in each area.

### College Requirements

1. Students must complete at least 120 hours of course work or its equivalent with a grade-point average of at least 2.0. Of these hours, 39 must be at or above the 300 level.

2. In addition to the Basic Skills requirement for foreign language in University Studies, students in music and students in art history (major or minor) must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence.

3. Students must complete either a major or an individual study program.

### Requirements for a Major

The major—selected from art education, art history, art studio, music, theatre, or arts administration—must include at least 45 credit hours. Among these 45 hours students must include the following:

1. At least six hours of premajor work.

2. At least 18 hours at or above the 200 level in a departmental or school program.

3. At least 15 hours in work related to but outside the major department, six hours of which must be within the College of Fine Arts. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

In addition, students must complete the departmental or school requirements that have been established. Specific major requirements are outlined in detail under the appropriate department and school sections which follow.

## Requirements for an Individual Study Program

Students who have interests that cross disciplinary lines may prepare, in consultation with a college faculty adviser, an individual study program. In addition to the University and College requirements of the B.A. degree listed above, students must meet these requirements:

1. Of the 120 credit hours required for this degree, at least one-half (60 credit hours) must be in Fine Arts courses. If the student has a focus within a single Fine Arts discipline, at least six of these 60 hours must be outside that discipline. With the approval of the Individual Study Committee and the Dean of the College of Fine Arts, students may take up to 15 of these 60 credit hours in appropriate arts-related courses outside the College of Fine Arts.

2. To enter the Individual Study Program, a student must submit an application proposal to the Office of the Dean. With the assistance and approval of an adviser, the student should outline a cohesive academic program which ranges beyond a departmental/school major, should define degree objectives, and should list courses selected to reach these objectives. Applications must be approved by the Individual Study Committee and by the Dean of the College of Fine Arts. Applications must be filed no later than the conclusion of the sophomore year (when 60 credit hours have been earned).

3. A final statement which assesses the results, values, and cohesiveness of the student's program must be filed in the Office of the Dean four weeks before the end of the student's final semester. A form for this purpose may be obtained in the Office of the Dean.

## Requirements for the Bachelor of Fine Arts Degree

The University and College requirements for the B.F.A. are the same as the B.A. requirements outlined above.

### Requirements for the Bachelor of Music in Music Performance and in Music Education

These requirements are outlined with other program requirements under the School of Music.

### Advising

**Department of Art**

Academic advising is provided by selected faculty in the area of the student's major (art education, art history, or art studio). Upon declaring a major, the student should contact the Art Department and request an adviser.

**School of Music**

The School of Music has a personalized, faculty-based advising system. Each music major is assigned a faculty adviser who is particularly familiar with the student's undergraduate music degree. That faculty member serves as adviser/counselor through the student's final semester and graduation.

**Department of Theatre**

Students interested in applying to the B.F.A. in Acting program must successfully complete an acting audition. Contact the director of the B.F.A. Acting program for audition information. Students must successfully complete an annual audition and meet all B.F.A. requirements to retain B.F.A. status.

Students interested in applying to the B.F.A. in Design and Technology program must arrange for an interview. Contact the director of the B.F.A. Design and Technology program for further information. Students must successfully complete their annual portfolio review and meet all B.F.A. requirements to retain B.F.A. status.

All B.F.A. students are encouraged to participate in the Kentucky Theatre Association, the Southeast Theatre Conference, and the appropriate acting or design competitions sponsored by the American College Theatre Festival.

All theatre students in the B.A. degree program must meet with the Director of Undergraduate Studies for advising and scheduling information.

**Arts Administration Program**

All students are assigned an academic adviser when they enter the program. Advisers not only help students choose courses to complete their degree requirements, but also assist students in finding internships.

## DEPARTMENT OF ART

### Requirements for the B.A. with a major in ART EDUCATION

Art education majors who wish to receive a teaching certificate must meet state certification requirements for the K-12 Area of Concentration in Art, as well as the requirements of the college in which they are enrolled. To qualify for student teaching and teacher certification, a student must be officially admitted into the Teacher Education Program (TEP). Application is made by the student through the College of Education after completion of 60 hours of course work, including EDP 202. Certification also requires successful completion of the National Teachers Exam (NTE) and a one-year, paid internship. Additional information on TEP, NTE, certification and internship is outlined in the *College of Education* section of this Bulletin.

**University Studies**

Using the University Studies Program as the basis, the following requirements best meet both USP requirements and state Department of Education requirements for certification.

**Basic Skills**

A. MA 109 **or** Enhanced Math ACT 26 **or** UK by-pass exam **or** any calculus course ..... 0-4

B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communicative Skills**

A. Calculus (MA 123 **or** MA 113 **or** STA 200 **plus** PHI 120 **or** PHI 320) ..... 3-6

B. Writing (ENG 101 **and** ENG 102 **or** Enhanced English ACT 29 **plus** passed proficiency exam **and** ENG 105) ..... 3-6*

C. Oral Communication (COM 181 **or** by-pass exam) ..... 0-3

*All students applying for admission to the Art Teacher Education Program are required to submit samples of their writing to the Art Education Program Faculty. Honors Program students should refer to the University Studies Program, Humanities, Option 2 for alternatives for fulfilling the University writing requirement.

**Disciplinary Requirements**

A. Natural Sciences (See USP requirements for specified sequences) ..... 6-8

B. Social Sciences (PSY 100 **plus** two courses in separate disciplines as specified in USP) ..... 10

C. Humanities* (See USP requirements for specified sequences) ..... 6

**Cross-Disciplinary*** ..... 6
(See USP requirements for clusters or pairings)

**Cross-Cultural**** ..... 3
(See USP requirements for specified courses)

**Total University Studies Hours** ..... 45-60***

*Although no more than 18 hours of University Studies may overlap with the 48 hours required for the Art Area of Concentration, students may satisfy the Humanities Disciplinary requirement, the Cross-Disciplinary requirement, and six hours of the Area of Concentration requirement by taking a sequence of clustered courses such as: MUS 201/202 Music in Western Culture to 1700/1700-Present, and A-H 105/106 Ancient Through Medieval Art/Renaissance Through Modern Art. For majors enrolled through the Department of Art, this particular selection of courses will also satisfy the College of Fine Arts requirement of six hours of music and/or theatre.

**Students may satisfy the Cross-Cultural requirement and three hours of the Area of Concentration requirement by taking A-H 310, Art and Archaeology of Egypt and Western Asia.

***Some students might be able to satisfy the University Studies requirement in as few as 37 hours. However, if total University Studies hours are less than 45, one or more courses will be need to bring the total up to 45 hours in general studies as required by the state for Teacher Certification.

**Professional and Art Education Requirements**

| | Hours |
|---|---|
| Required | 32 |
| EDP 202 Human Development and Learning | 3 |
| EDP 203 Teaching Exceptional Learners in Regular Classrooms | 3 |
| EPE 301 Education in American Culture | 3 |
| EDC 362 Field Experiences in Secondary Education | 1-3 |
| EDC 317 Introduction to Instructional Media | 1* |
| EDA 401 The Professional Teacher: Legal Perspectives | 1 |
| EDC 342 Student Teaching in Art | 12 |
| A-E 578 Art in Elementary Schools | 3 |
| A-E 577 Art in Secondary Schools | 3 |
| A-E 579 Seminar in Art Education | 2 |

*This courses fulfills the state certification computer literacy requirement.

**Area of Concentration in Art**

**A. Art History and Appreciation** ( 16 credit hours)

1. Lower Division (select two of the following courses: ART 100, A-H 105, A-H 106) ..... 6

2. Upper Division (two 300-level or above A-H courses) ..... 6

3. ART 191 Art Professions ..... 4*

*These hours will also fulfill the Department of Art's four hours of Art Professions requirement for art education majors enrolled through that department and the College of Fine Arts.

**B. Art Studio** ( 32 credit hours)

1. Lower Division (all of the following courses:)

| | |
|---|---|
| A-S 102 Visual Exploration I | 3 |
| A-S 103 Visual Exploration II | 4 |
| A-S 200 Studio I | 3 |
| A-S 215 Studio II | 3 |
| A-S 255 Studio III | 3 |

2. Upper Division (all of the following courses:)

| | |
|---|---|
| A-S 310 Painting I | 3 |
| A-S 320 Printmaking I **or** | 3 |
| A-S 321 Printmaking II | 3 |
| A-S 370 Ceramics I | 3 |

3. Studio Electives (Need not be upper division. Regular and/or independent course work may be selected from one or from several studio areas.) ..... 7

**Total Area of Concentration in Art Hours** ..... 48*

**Total Hours for Graduation and Certification** ..... 120/128**

*This total number of hours meets the state certification minimum requirement for the Area of Concentration in Art.

**Some students may be able to satisfy University Studies requirements, Professional and Art Education requirements, and Area of Concentration requirements with less than the minimum hours required for graduation from the college in which they are enrolled. In that event, they must take additional hours of elected course work to meet their college's requirement. Minimum hours required for graduation from the College of Fine Arts: 120. Minimum hours required for graduation from the College of Education: 128.

**State Certification General Education Requirements**

The Kentucky Department of Education requires that the general education component of all Teacher Education Programs consist of 45 semester hours distributed across state-defined Areas 1, 2, and 3. The specific state Area requirements will be met in the following manner:

**Area 1**: The minimum of nine semester hours in this area is exceeded with PSY 100 (four semester hours), six semester hours of Humanities, and three semester hours from cross-disciplinary courses. The student will be called upon to demonstrate a reasonable level

of skill in art studio course activities requiring physical coordination (for example, throwing on the wheel in A-S 370, Ceramics I.)

**Area 2:** The minimum of nine semester hours in this area is met or exceeded with required courses in math, English composition, speech, and in some cases, foreign languages.

**Area 3:** The minimum of 18 semester hours in this area is met with six hours of natural science, six hours of social science, three hours of cross-disciplinary, and three hours of cross-cultural course work.

## Requirements for the B.A. with a major in ART HISTORY

In addition to fulfilling College and University requirements as outlined earlier, the major in art history must include the following:

### Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. Two art studio courses

### Major Requirements

1. ART 191 Art Professions (two credit hours required)
2. Two art studio courses
3. A total of 15 additional hours of art history **or** museum training at the 300 level or above
4. A-H 560 Art History Seminar
5. Students in art history must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence. (French and/or German recommended.)
6. At least 15 hours in courses related to the art history major but outside the Art Department, six hours of which must be within the College of Fine Arts. With the approval of an adviser, students are encouraged to elect courses in anthropology, classics, history, philosophy, literature, the arts, and most particularly languages—especially French, German, and other languages relevant to special period or regional studies.

### Minor in Art History

Students from any college may choose to minor in art history. This minor requires at least 18 hours of course work, plus satisfaction of a language requirement.

1. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
2. At least nine hours of work in art history at the 300 level or above
3. At least one course in art studio
4. Students in art history must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence. (French and/or German recommended.)

## Requirements for the B.A. with a major in ART STUDIO

In addition to fulfilling College and University requirements as outlined earlier, the major in art studio must include the following:

### Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. A-S 102 Visual Exploration I
   A-S 103 Visual Exploration II
   A-S 200 Studio I
   A-S 215 Studio II
   A-S 255 Studio III

### Major Requirements

1. ART 191 Art Professions (two credit hours required)
2. Twenty-four hours of studio courses at or above the 300 level, 12 hours of which must be in a single discipline (e.g., painting, sculpture, printmaking, etc.)
3. At least six hours of art history at or above the 300 level
4. A-S 490 Senior Seminar (taken during the final year of study)
5. Participation in a Graduating Seniors' Exhibition
6. At least 15 hours in work related to but outside the major department, six hours of which must be within the College of Fine Arts.

## Requirements for the B.F.A. with a major in ART STUDIO

This degree is available to students selected through the demonstration of special abilities in the visual arts **no earlier** than a student's fourth full semester of college study. The program emphasizes the individual development of expressive means by requiring an approved plan of extended study in the studio major curriculum which will provide the best prospects for each student's interests and abilities. The plan may focus on a single medium (such as graphic design, painting, photography, printmaking, fiber, sculpture, or ceramics) or any combination of media.

In addition to fulfilling College and University requirements as outlined earlier, each student seeking the Bachelor of Fine Arts in art studio must complete the following:

### Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. A-S 102 Visual Exploration I
   A-S 103 Visual Exploration II
   A-S 200 Studio I
   A-S 215 Studio II
   A-S 255 Studio III

### Major Requirements

1. ART 191 Art Professions (four credit hours required)
2. Thirty-six credit hours of studio courses at or above the 300 level, according to the student's committee-approved plan of study
3. Nine credit hours of art history at the 300 level or above
4. A-S 490 Senior Seminar (taken during the final year of study)
5. Presentation of a one-person senior exhibition for final approval by a studio faculty review committee.
6. At least 15 hours in work related to but outside the major program, six hours of which must be within the College of Fine Arts. Choice of this related work must be approved by the student's adviser. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

### Minor in Art Studio

Students from any college may choose to minor in art studio. The minor requirements are as follows:

| | Hours |
|---|---|
| 1. ART 191 Art Professions **and** | 2 |
| One course chosen from the following: | |
| A-S 102 Visual Exploration I | 3 |
| A-S 103 Visual Exploration II | 4 |
| 2. One course chosen from the following: | |
| A-S 200 Studio I | 3 |
| A-S 215 Studio II | 3 |
| A-S 255 Studio III | 3 |
| 3. At least nine hours in studio at the 300 level or above | |
| 4. One course chosen from the following: | |
| ART 100 Introduction to Art | 3 |
| A-H 105 Ancient Through Medieval Art | 3 |
| A-H 106 Renaissance Through Modern Art | 3 |

# SCHOOL OF MUSIC

## Requirements for the B.A. with a major in MUSIC

Admission to the B.A. program in music is granted only after the successful completion of an audition in the student's performance area.

In addition to fulfilling College and University requirements as outlined earlier, the major in music must include the following:

| Lower Division | Hours |
|---|---|
| 1. Premajor courses: MUS 170, 171, 172, 173 | 8 |
| 2. Interrelated music history and theory courses: MUS 203, 302, 303 and MUS 270, 271, 272, 273 | 17 |
| 3. Major musical instrument or voice performance course of two hours each semester | 8 |
| 4. Ensemble | 4 |
| 5. All music majors must pass a piano proficiency examination and should schedule, in consultation with their adviser, a suitable course each semester until this requirement is completed. Students with little or no prior piano study should normally expect to complete the piano proficiency examination by the end of four semesters of study | 4 or as needed |
| 6. MUS 001 Recital Attendance | 0 |

| Upper Division | Hours |
|---|---|
| 1. Continuation of major musical instrument or voice performance courses above the sophomore level | 4 |
| 2. MUS 372 Musical Analysis | 2 |
| 3. Ensemble | 2 |
| 4. Music courses chosen from upper division courses appropriate to the areas of music history, theory, composition, and literature | 10 |
| 5. Electives: To include 18 hours in courses related to the major but outside the School of Music, six hours of which must be within the College of Fine Arts. Choice of this related work must be approved by the student's adviser. Courses used to fulfill University Studies may be used to fulfill this related work, when appropriate. | |

## Requirements for the BACHELOR OF MUSIC

### with a major in Music Performance

Admission to the Bachelor of Music program in music performance is granted only after the successful completion of an audition in the student's performance area.

To earn a Bachelor of Music degree in music performance, a student must complete 120 credit hours and have at least a 2.0 grade-point standing. At the conclusion of the sophomore year and before continuing in music performance at the upper division level, each student must perform before the music performance faculty for approval. Each student must also present a full recital during the senior year.

In addition to fulfilling University Studies requirements, students in music performance must complete one of the following concentrations:

**Concentration in an Instrument (88 hours)**

1. Major Instrument Study (MUP courses) ..... 24
2. All music majors must pass a piano proficiency examination and should schedule, in consultation with their adviser, a suitable course each semester until this requirement is completed. Students with little or no prior piano study should normally expect to complete the piano proficiency examination by the end of four semesters of study ..... 4 or as needed
3. MUS 001 Recital Attendance ..... 0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 371, 372, and choice of MUS 572 or 573 ..... 25
5. Conducting: MUS 358 ..... 2
6. Music History: MUS 203, 302, 303, **plus** one course elected from MUS 500, 501, 502, 503, 504, 505 or 506 ..... 12
7. Appropriate Music Ensemble (each semester) . 8
8. Electives ..... 13

**Concentration in Piano (88 hours)**

1. Piano (three credits each semester): MUP 101, 201, 301, 401 (each course repeated once) ..... 24
2. MUS 001 Recital Attendance ..... 0
3. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 or 573 ..... 23
4. Music History: MUS 203, 302, 303, **plus** one course elected from MUS 500, 501, 502, 503, 504, 505 or 506 ..... 12
5. Piano Literature: MUS 522 ..... 3
6. Appropriate Music Ensemble (each semester) . 8
7. Piano Pedagogy: MUS 566 ..... 3
8. Electives ..... 15

**Concentration in Organ (88 hours)**

1. Organ—three credits each semester: MUP 103, 203, 303, 403 (each course repeated once) ..... 24
2. Piano—one credit course MUP 101-MUP 201, each repeated once ..... 4
3. MUS 001 Recital Attendance ..... 0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 or 573 ..... 23
5. Music History: MUS 203, 302, 303, **plus** one course selected from MUS 500, 501, 502, 503, 504, 505 or 506 ..... 12
6. Organ Literature: MUS 521 ..... 3
7. Appropriate Music Ensemble (each semester) ..... 8
8. Electives ..... 14

**Concentration in Voice (94-105 hours)**

1. Voice—one three-hour course each semester: MUP 102, 202, 302, 402 (each course repeated once) ..... 24
2. All music majors must pass a piano proficiency examination and should schedule, in consultation with their adviser, a suitable course each semester until this requirement is completed. Students with little or no prior piano study should normally expect to complete the piano proficiency examination by the end of four semesters of study ..... 4 or as needed
3. MUS 001 Recital Attendance ..... 0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 or 573 ..... 23
5. Music History: MUS 203, 302, 303, **plus** one course selected from MUS 500, 501, 502, 503, 504, 505 or 506 ..... 12
6. Foreign Language—Select two languages from Italian, French, or German and pass the third semester course of one language (or demonstrate equivalent competence) and the second semester course of another language (or demonstrate equivalent competence) ..... 6-17
7. Foreign Language Vocal Diction: MUS 120 (two semesters) ..... 2
8. Vocal Solo Literature: MUS 520 ..... 3
9. Conducting: MUS 358 ..... 2
10. Appropriate Music Ensemble (each semester) ..... 8
11. Electives ..... 6-10

## Requirements for the Bachelor of MUSIC IN MUSIC EDUCATION

The major in music education is the joint concern of the School of Music in the College of Fine Arts and the Department of Curriculum and Instruction in the College of Education. Admission to the program is granted only after the successful completion of an audition in the student's performance area. In addition to completing the required courses, the student must present a half-recital or the equivalent on the major instrument or in voice during or after the sixth semester of study.

Music education majors who wish to receive a teaching certificate must meet the certification requirements of the College of Education, as well as the requirements for the College of Fine Arts. To qualify for student teaching and state teacher certification, a student must be officially admitted into the Teacher Education Program. Certification also requires successful completion of the National Teachers Exam and a one-year paid internship. Additional information on TEP, NTE, certification and internship is outlined in the *College of Education* section of this Bulletin.

**University Studies**

Using the University Studies Program as the basis, the following requirements best meet both USP requirements and state Department of Education requirements:

**Basic Skills**

A. MA 109 **or** Enhanced Math ACT 26 **or** UK by-pass exam **or** any calculus course ..... 0-4

B. Two semesters foreign language **or** two years high school foreign language ..... 0-8

**Inference and Communicative Skills**

A. Inference (see USP requirements) ..... 3-6

B. Writing requirements (see USP requirements) ..... 3-6

C. Oral Communication requirements ..... 0
Students may use MUS 262 and 264 **or** MUS 263 and 265 as a substitute.

**Disciplinary Requirements**

A. Natural Sciences (see USP requirements) .... 6-8

B. Social Sciences
PSY 100 **plus** one other course in a separate discipline as required by University Studies ..... 7

C. Humanities* (see USP requirements) ..... 6
Recommended: HIS 104/105

**Cross-Disciplinary Requirements*** ..... 6
(See USP requirements)
Recommended:
A-H 105 Ancient Through Medieval Art
TA 380 History of the Theatre I
**or**
ART 100 Introduction to Art
TA 101 Introduction to Theatre: Principles and Practice
**or**

*By using the Humanities cluster it is possible for a student to elect Cluster Option #6 – Western Traditions, HIS 104/105 and A-H 105/106 to satisfy both Humanities (Area IIIC) and Cross Disciplinary (Area IV) for a total of 12 hours.

**Cross-Cultural**
(see USP requirements) ..... 3

**Professional Education Requirements**

| | Hours |
|---|---|
| EDP 202 Human Development and Learning | 3 |
| EDP 203 Teaching Exceptional Learners in Regular Classrooms | 3 |
| EPE 301 Education in American Culture | 3 |
| EDC 344 Principles and Techniques of Teaching in the Secondary School | 3 |
| EDC 377 Student Teaching in Music | 1 |
| Computer Competency: EDC 317 or equivalent | 0-1 |

**Music Requirements – General**

| | Hours |
|---|---|
| Recital Attendance: (four courses – zero credit – completed satisfactorily) | 0 |
| Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 371, 372 | 20 |
| Music History: MUS 203, 302, 303 | 9 |
| Performance: MUP in major performance area | 12 |
| Senior Recital: the successful completion of one half a solo recital must be completed for graduation. | |
| Ensemble: | 6 |
| Electives: | 6 |

**Music Requirements – Major Performance Areas** (18-21 hours)

Depending on the area of interest, the student must select one of the major performance areas below:

**Major Performance Area – Vocal** (18 hours)

| | Hours |
|---|---|
| A. Diction: MUS 120 (two semesters) | 2 |

B. All music majors must pass a piano proficiency examination and should schedule, in consultation with their adviser, a suitable course each semester until this requirement is completed. Students with little or no prior piano study should normally expect to complete the piano proficiency examination by the end of four semesters of study. Music Education majors should pass the piano proficiency ex-

amination at least two semesters before student teaching. ..... 4 or as needed
C. Music Education: MUS 262, 264, 360, 361, 362 ..... 12

**Major Performance Area–Keyboard** (18 hours)

| | Hours |
|---|---|
| A. Minor Performance: MUP 102, 202 | 3 |

A voice proficiency test must be passed prior to student teaching.

| | |
|---|---|
| B. Pedagogy and Literature–select **one** of the following: MUS 522, 523, 566 | 3 |
| C. Music Education: MUS 262, 264, 360, 361, 362 | 12 |

**Major Performance Area–Woodwinds, Brass, Strings, Percussion** (21 hours)

| | Hours |
|---|---|
| A. All music majors must pass a piano proficiency examination and should schedule, in consultation with their adviser, a suitable course each semester until this requirement is completed. Students with little or no prior piano study should normally expect to complete the piano proficiency examination by the end of four semesters of study. Music Education majors should pass the piano proficiency examination at least two semesters before student teaching. ..... 4 or as needed | |
| B. Secondary Instruments | |
| **Brass majors:** | |
| MUC 157, 158, 161, 163 | 6 |
| **Woodwind majors:** | |
| MUC 157, 158, 161, 163 | 6 |
| **String majors:** | |
| MUC 157, 158, 161, 163 | 6 |
| **Percussion majors:** | |
| MUC 158, 161, 163 | 6 |
| C. Music Education: MUS 263, 265, 360, 363, 365 | 11 |

### Minor in Music

Students from any college may complete a minor in music, selecting either an emphasis in theory/history or performance. Such a minor consists of at least 18 hours of course work in music. In the theory/history emphasis, six to nine hours of music theory, six to nine hours of music history, and three hours of music performance are required. In the performance emphasis, eight hours of performance instruction, four hours of appropriate ensemble, and six hours of music history or theory are required. A successful audition is required for private performance study in the designated area (level of performance expectation is that of entering freshman music major). The course requirements are as follows:

**Minor in Music: Music Theory and History**

1. **Music Theory** (six to nine hours)
Students should choose from:

| | |
|---|---|
| MUS 174 Theory for Non-Music Majors | 3 |
| MUS 170/171 Theory I: Elementary Aural and Written Theory (Theory placement examination or MUS 174 is a prerequisite) | 3 |
| MUS 172/173 Theory I: Elementary Aural and Written Theory (MUS 170/171 are prerequisites) | 3 |

2. **Music History** (six to nine hours)
Students should choose from:

| | |
|---|---|
| MUS 100 Introduction to Music | 3 |
| MUS 201 Music in Western Culture to 1700 | 3 |
| MUS 202 Music in Western Culture, 1700 to Present | 3 |
| MUS 203 History of Music | 3 |
| MUS 220 Symphonic Music | 3 |
| MUS 221 A Survey of Choral Masterworks: Baroque to the Present | 3 |
| MUS 300 History of Jazz | 3 |
| MUS 302 History of Music | 3 |
| MUS 303 History of Music | 3 |

3. **Performance** (three hours)
Students may choose class or private performance instruction (one to two hours) or ensemble (one to two hours).

**Minor in Music: Performance**

1. **Performance Study** (12 hours)
Performance instruction (eight hours) — four semesters, sequential enrollment in MUP courses at appropriate level; two hours per semester.
Ensemble (four hours) in appropriate ensemble.

2. **Music History and Theory** (six hours)
Courses to be chosen from the following:

| | |
|---|---|
| MUS 174 Theory for Non-Music Majors | 3 |
| MUS 170/171 Theory I: Elementary Aural and Written Theory (Theory placement examination or MUS 174 is a prerequisite) | 4 |
| MUS 172/173 Theory I: Elementary Aural and Written Theory (MUS 170/171 are prerequisites) | 4 |
| MUS 100 Introduction to Music | 3 |
| MUS 201 Music in Western Culture to 1700 | 3 |
| MUS 202 Music in Western Culture, 1700 to Present | 3 |
| MUS 203 History of Music | 3 |
| MUS 220 Symphonic Music | 3 |
| MUS 221 A Survey of Choral Masterworks: Baroque to the Present | 3 |
| MUS 300 History of Jazz | 3 |
| MUS 302 History of Music | 3 |
| MUS 303 History of Music | 3 |

**Note:** Some variation in the above courses is possible, with written approval from the Director of Undergraduate Studies, School of Music. The availability of the minor in music performance is dependent on sufficient time within the appropriate instructor's designed teaching load.

## DEPARTMENT OF THEATRE

The Department of Theatre envisions itself as an environment in which theatre can happen—a community of artists and scholars working collectively toward the study, practice, and development of theatre art. While curricular and cocurricular activities extend across the whole range of theatre, special opportunities exist for those interested in acting, directing, design or technical theatre, and management.

### Requirements for the B.A. with a major in THEATRE

In addition to fulfilling College and University requirements outlined earlier, the major in theatre must include the following:

**Premajor Requirements**

| | Hours |
|---|---|
| TA 150 Fundamentals of Production | 3 |
| TA 126 Acting Ensemble | 3 |
| TA 225 Vocal Production for the Stage I | 3 |

**Major Curricular Requirements**

Successful completion of the following courses:

| | |
|---|---|
| **Acting** | |
| TA 226 Methods in Acting | 3 |
| TA 227 Introduction to Acting Styles | 3 |
| **Directing** | |
| TA 330 Principles of Directing | 3 |
| TA 430 Theatre Directing I | 3 |
| **Design and Technical** | |
| TA 260 Stagecraft | 3 |
| TA 264 Makeup for the Theatre | 3 |
| TA 365 Costume Design I | 3 |
| TA 367 Stage Lighting | 3 |
| TA 374 Scene Design | 3 |
| **History and Theory** | |
| TA 283 American Theatre | 3 |
| TA 380 History of the Theatre I | 3 |
| TA 381 History of the Theatre II | 3 |
| TA 383 Script Analysis | 3 |
| TA 387 Seminar in Theatre | 3 |

**Major Cocurricular Requirements**

| | |
|---|---|
| TA 390 Production Practicum (repeated once) | 2 |
| TA 391 Production Practicum (repeated once) | 2 |
| TA 590/591 Production/Performance Practicum | 1 |

**Senior Project**

To be taken in the student's senior year.

| | |
|---|---|
| TA 495 Senior Project | 3 |

**Related Experience**

Successful completion of at least fifteen hours in work related to but outside theatre, six hours of which must be within the College of Fine Arts, and three hours of which must be a course in dramatic literature (i.e., ENG 425G, Shakespeare Survey; ENG 426G, Shakespeare Studies; ENG 448G, English Drama; ENG 466G, Modern Drama; and ENG 363, Special Topics in Literature, when appropriate). Courses which are used to fulfill University Studies requirements may also be used to fulfill this requirement.

| | |
|---|---|
| Fine Arts Courses (music or art) | 6 |
| Related University Courses (outside college) | 9 |

**Electives**

Students must select six credit hours of free electives.

### Requirements for the B.F.A. with a major in THEATRE

This degree program is available to students demonstrating special abilities in acting or design and technology. Normally students apply to the program when declaring their major or during their freshman year. Program requirements may be completed in the traditional four-year format and one summer session. Using a professional conservatory approach, this program requires the following courses:

### Concentration in Acting

In addition to fulfilling the College and University requirements, each student seeking the Bachelor of Fine Arts in theatre, with a concentration in acting, must complete the following:

| Premajor Requirements | Hours |
|---|---|
| TA 150 Fundamentals of Production | 3 |
| TA 126 Acting Ensemble | 3 |
| TA 225 Vocal Production for the Stage I | 3 |

| Major Requirements | Hours |
|---|---|
| Course Curricular Requirements | |
| TA 127 Acting Techniques | 3 |
| TA 226 Methods in Acting | 3 |
| TA 227 Introduction to Acting Styles | 3 |
| TA 260 Stagecraft | 3 |
| TA 264 Makeup for the Theatre | 3 |
| TA 320 Theatre Movement I | 3 |
| TA 326 Intermediate Acting | 3 |
| TA 327 Advanced Acting | 3 |
| TA 330 Principles of Directing | 3 |
| TA 380/381 History of the Theatre I and II | 6 |
| TA 383 Script Analysis | 3 |
| TA 387 Seminar in Theatre | 3 |
| TA 390 Performance Practicum (repeated once) | 2 |
| TA 391 Performance Practicum (repeated once) | 2 |
| TA 426 Intermediate Acting Styles | 3 |
| TA 430 Theatre Directing I | 3 |
| TA 495 Senior Project | 3 |
| TA 524 Dialects for the Stage | 3 |
| TA 525 Vocal Production for the Stage II | 3 |
| TA 591 Performance Practicum | 1 |
| Plus **two** of the following: | |
| TA 322 Circus Techniques and Commedia | 3 |
| TA 323 Stage Combat | 3 |
| TA 324 Period Movement | 3 |
| Plus **one** of the following: | |
| TA 365 Costume Design I | 3 |
| TA 367 Stage Lighting | 3 |
| TA 374 Scene Design | 3 |

### Summer Program Requirement

Students must take part in a summer theatre program on or off the UK campus. (Letter of certification from supervisor required.) Course credit is available for UK Summer Theatre (TA 396, TA 397, TA 596) and may be available for other programs.

### Related Course Requirements

Successful completion of at least fifteen hours in work related to but outside theatre, six hours of which must be within the College of Fine Arts, and three hours of which must be in a course in dramatic literature (i.e. ENG 425G, ENG 426G, ENG 448G, ENG 466G, and ENG 363). Courses which are used to fulfill University Studies may also be used to fulfill this requirement.

### Electives

Students must select six credit hours of free electives.

### Review for Retention

At the conclusion of the freshman, sophomore, and junior years, the performance faculty will review each student's performance to determine whether retention in the B.F.A. program should be granted.

## Concentration in Design and Technology

In addition to fulfilling the College and University requirements, each student seeking the Bachelor of Fine Arts in theatre, with a concentration in design and technology, must complete the following:

| Premajor Requirements | Hours |
|---|---|
| A-S 102 Visual Exploration I | 3 |
| TA 126 Acting Ensemble | 3 |
| TA 150 Fundamentals of Production | 3 |
| TA 190 Production Practicum | 1 |
| TA 191 Performance Practicum (repeated once) | 2 |
| TA 225 Vocal Production for the Stage I | 3 |
| TA 260 Stagecraft | 3 |
| TA 264 Makeup for the Theatre | 3 |
| TA 272 Principles of Stage Drafting | 3 |

| Major Requirements | Hours |
|---|---|
| **Course Curricular Requirements** | |
| A-S 103 Visual Exploration II | 4 |
| A-H 105 Ancient through Medieval Art | 3 |
| A-H 106 Renaissance through Modern Art | 3 |
| TA 330 Principles of Directing | 3 |
| TA 350 Topics in Theatre (technical subtitle) | 3 |
| TA 360 Stagecraft II | 3 |
| TA 365 Costume Design I | 3 |
| TA 367 Stage Lighting | 3 |
| TA 374 Scene Design | 3 |
| TA 390/590 Production Practicum (one course repeated twice) | 3 |
| TA 430 Theatre Directing I | 3 |
| TA 465 Costume Design II | 3 |
| TA 495 Senior Project | 3 |
| TA 380/381 History of Theatre I and II | 6 |

### Related Course Requirements

Students must successfully complete at least 15 hours in work related to but outside theatre. Of these hours, six will be taken care of with the earlier requirement of art studio and art history courses. The department suggests that the other nine hours be selected from courses in art, music, dance, English, communications, philosophy, psychology, classics, history, language, apparel design, or other related areas. Choice of this related work must be approved by the student's adviser. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

Students may complete their related course requirements during their two year in-program work. However, a student may not take more than 19 hours during any one semester without the approval of the chairperson of the department and the dean of the college.

### Summer Program Requirement

Students in the major specialization program are required to spend the summer between their junior and senior years in an intensified theatre experience. This requirement may be satisfied by enrolling in the UK Summer Theatre for a minimum of six credit hours, to be selected from TA 396, TA 397, TA 398, and TA 596. Off-campus equivalent experiences must be approved in advance by the Design and Technology faculty.

### Electives

Students may select six credit hours of free electives in consultation with their advisers.

### Review for Retention

Upon completion of the candidate's first year of study in the B.F.A. program, the Design and Technology faculty will review the student's performance to determine whether commitment has been demonstrated and sufficient progress shown. Should the faculty decide to drop the candidate, or should the candidate decide to withdraw from the program, all credits with passing grades will count toward the completion of the B.A. program in theatre.

### Graduation Requirements

Students must successfully complete all course work with a cumulative grade-point average of 3.0 or above in all theatre courses, including a grade of B or above in TA 495, Senior Project, which will be juried by all members of the Design and Technology faculty.

## Minor in Theatre

Students from any college may choose to minor in theatre. This minor requires at least 21 hours of course work arranged as follows:

| 1. Prerequisites | Hours |
|---|---|
| TA 150 Fundamentals of Production | 3 |
| TA 126 Acting Ensemble | 3 |

When appropriate, upper level courses may be substituted with the approval of the student's adviser and the chairperson of the Department of Theatre.

**2. Performance/Production Experience**

TA 190, 390, or 590 Production Practicum ..... 1
TA 191, 391, or 591 Performance Practicum ..... 1

The third credit is to be selected from TA 190, 191, 390, 391, 590, or 591.

**3. Elected Theatre courses (12 hours)**

Of these 12 hours, at least three hours must be at the 300 level or above.

# INTERDISCIPLINARY PROGRAMS

## Requirements for the B.A. with a major in ARTS ADMINISTRATION

With the increase in the number of performing and visual arts facilities, arts councils and arts advocacy groups, there is a growing need for individuals with both artistic sensibilities and business acumen to work in these areas.

The purpose of the Arts Administration program is to expose students to a wider range of study while maintaining an emphasis in one of the established disciplines of art, music or theatre. The program introduces students to practical aspects of arts administration and prepares them for entry-level positions and for graduate study.

In addition to completing University Studies requirements and College requirements, students in arts administration fulfill the following program requirements.

### General Requirements

| Business and Communications | Hours |
|---|---|
| ACC 201 Principles of Accounting | 3 |
| ACC 202 Principles of Accounting | 3 |
| MKT 300 Marketing Management | 3 |
| MGT 341 Business Law I or | 3 |
| MGT 340 Ethical and Regulatory Environment | 3 |
| FIN 300 Corporation Finance | 3 |
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| COM 325 Business and Industrial Communication | 3 |

| Arts Administration | |
|---|---|
| FA 301 Principles and Practices of Arts Administration | 3 |
| FA 401 Seminar in Arts Administration | 3 |

**Internships** (6-9 hours)

FA 499 Internship in Arts Administration (on campus) ..... 1-9

FA 499 Internship in Arts Administration
(off campus preferably out of region) ..... 1-9
The number of hours is dependent upon the nature of the internships.

**Free Electives (6 hours)**

**Directed Electives (9 hours)**

Depending upon the student's particular area of interest in arts administration, courses at the 300 to 500 level shall be selected from the following areas with a minimum of 6 of the 9 hours of directed electives to be selected from one of these areas. Consent of adviser is required.

Humanities: To be selected from among 300-500 level courses in history, English, philosophy, foreign languages, or classical languages and literatures.

Social Sciences and Communication: To be selected from among 300-500 level courses in sociology, psychology, anthropology, communication, or political science.

Business: To be selected from among the following courses or their equivalent: MGT 301, MGT 320, MGT 410, MKT 310, MKT 340, MKT 400.

## Arts Administration Emphasis

Students in the Arts Administration program must select an emphasis in music, theatre, or art.

### Emphasis in Music

**Primary Course Requirements** (37 Hours)
Students must successfully pass an audition to be admitted to this program emphasis.
Music Theory: MUS 170, 171, 172, 173, 271, 273 ..... 12
History of Music: MUS 203, MUS 302, MUS 303 ... 9
Class Instruction in Piano: MUC 150-153 **or**
MUP: Private Piano ..... 4
MUP: Applied Lessons (voice, instrument) ..... 8
MUC Ensemble ..... 4
MUS 001 Recital Attendance (four semesters) ..... 0

**Related Arts Requirement**

Students must select either theatre or art as a secondary arts area.

**Theatre** (10 Hours)
TA 126 Acting Ensemble ..... 3
TA 260 Stagecraft ..... 3
TA 150 Fundamentals of Production ..... 3
TA 190 Production Practicum ..... 1
These courses may be used to satisfy College requirements.

**Art** (10-11 hours)
A-H 105 Ancient Through Medieval Art* ..... 3
A-H 106 Renaissance Through Modern Art* ..... 3
A-S 102 Visual Exploration I **or**
A-S 103 Visual Exploration II** ..... 3-4
ART 191 Art Professions ..... 1

*May satisfy University Studies or College requirements.

**Either may satisfy College requirements.

### Emphasis in Theatre

**Primary Course Requirements** (29 hours)
TA 150 Fundamentals of Production ..... 3
TA 126 Acting Ensemble ..... 3
TA 127 Acting Techniques ..... 3
TA 260 Stagecraft ..... 3
TA 330 Principles of Directing ..... 3
TA 380 History of the Theatre I ..... 3
TA 381 History of the Theatre II ..... 3
TA 387 Seminar in Theatre ..... 3
(Recommended: The Broadway Musical)
TA 190/390 Production Practicum* ..... 1
TA 191/391 Performance Practicum* ..... 1
TA—One course in design ..... 3

*Number dependent upon experience and level of student.

**Related Arts Requirement**

Students must select either music or art as a secondary arts area.

**Music** (9 hours)
MUS 174 Theory for Non-Music Majors ..... 3
(A regular theory class may be substituted)
MUS 100 Introduction to Music ..... 3
(A regular music history class may be substituted)
Three additional hours in music ..... 3
MUS 001 Recital Attendance (1 semester) ..... 0
Credited classes may satisfy College requirements.

**Art** (10-11 hours)
A-H 105 Ancient through Medieval Art* ..... 3
A-H 106 Renaissance through Modern Art* ..... 3
A-S 102 Visual Exploration I **or**
A-S 103 Visual Exploration II** ..... 3-4
ART 191 Art Professions ..... 1

*May satisfy University Studies or College requirements.

**Either may satisfy College requirements.

### Emphasis in Art

**Primary Course Requirements** (31 hours)
ART 191 Art Professions ..... 1
(May be repeated to 4 credit hours)
A-S 102 Visual Exploration I ..... 3
A-S 103 Visual Exploration II ..... 4
A-S 215 Studio II (Painting) ..... 3
A-S 380 Photography I ..... 3
A-S 200 Studio I (Contemporary Issues) ..... 3
A-S 340 Graphic Design I ..... 3
A-H 105 Ancient through Medieval Art **or**
A-H 106 Renaissance through Modern Art ..... 3
Upper division A-H courses ..... 6
A-E 579 Seminar in Art Education ..... 2

**Related Arts Requirements**

Students must select either music or theatre as a secondary arts area.

**Music** (9 hours)
MUS 174 Theory for Non-Music Majors ..... 3
(A regular theory class may be substituted)
MUS 100 Introduction to Music ..... 3
(A regular music history class may be substituted)
Three additional credit hours in music ..... 3
MUS 001 Recital Attendance (1 semester) ..... 0
Credited classes may satisfy College requirements.

**Theatre** (10 hours)
TA 126 Acting Ensemble ..... 3
TA 260 Stagecraft ..... 3
TA 150 Fundamentals of Production ..... 3
TA 190 Production Practicum ..... 1
These courses may be used to satisfy College requirements.

## Interdisciplinary Minor in the Arts

### For Students outside the College

Any student whose major concentration is outside the College of Fine Arts may choose to minor in the arts, an academic program that cuts across disciplinary lines. This minor requires at least 24 hours of course work, arranged as follows:

**Prerequisites** (9 hours) **Hours**
ART 100 Introduction to Art ..... 3
MUS 100 Introduction to Music ..... 3
TA 101 Introduction to Theatre:
Principles and Practice ..... 3

**Note:** When appropriate, upper level courses may be substituted with the approval of the student's adviser and the Dean of the College of Fine Arts.

**Elected Courses** (15 hours)
Of these 15 hours, students must take at least six hours in each of two different disciplines (art, music, or theatre).

**Performance and/or Studio Experience**
Students must have performance and/or studio experience within the college in at least one of the arts, whether or not for academic credit.

### For Students within the College

Any student whose major emphasis lies within the College of Fine Arts may choose to minor in the arts by selecting at least 24 hours of course work in the College of Fine Arts (art, music, or theatre) outside the major. The minor must include at least nine hours of credit in each of the disciplines outside the major department or school. No more than six hours of course work used as "related work" for the major may be used toward the minor.

# GAINES CENTER

## The Gaines Center for the Humanities

*Raymond F. Betts, Ph.D., is Director of the Gaines Center for the Humanities.*

The Gaines Center for the Humanities is distinctive among special programs at state universities. Designed to enrich the upper levels of undergraduate study and thereby to offer exceptional opportunities for dedicated students, the programs of the center are open on a competitive basis to any student interested in the humanities, regardless of particular major or intended profession.

Activities of the Gaines Center are developed to encourage participation by a large segment of the university population. Conferences and lectures, informal seminars and discussions are open to all those interested. While the center's principal purpose is to enhance an appreciation of the humanities, its programs are arranged to stimulate inquiry about the relationship of the humanities to other broad areas of investigation, such as the sciences, the arts, and the professions.

### The John R. and Joan B. Gaines Fellowships in the Humanities

A major feature of the Gaines Center for the Humanities is the Gaines Fellowship Program. The Gaines Fellowships are given in recognition of outstanding academic performance, demonstrated independent study, an interest in public issues, and a desire to enhance understanding of the human condition.

The fellowships are awarded in the student's sophomore year for tenure in the junior and senior years. Renewal in the senior year is contingent upon satisfactory academic performance.

All Gaines Fellows are required to take a specially-designed, three-credit-hour seminar in the humanities during both semesters of the junior year; moreover, each Fellow in the senior year completes an undergraduate thesis under the supervision of three faculty members and with a credit of six to fifteen hours.

The completion of this program satisfies the University Studies requirement in cross-disciplinary work.

Gaines Fellows also participate in all social and cultural activities sponsored by the Gaines Center.



### Eligibility

Any student enrolled at the University of Kentucky, including its community colleges, is eligible for consideration.

### The Thomas D. Clark Lectureship in the Humanities

Created to bring eminent scholars and authors to the campus for an extended residency, the Thomas D. Clark Lectureship stipulates that the recipient will offer two or three public lectures to be published by the University Press of Kentucky, and will lead several sessions of a special humanities seminar related to the Lecturer's professional field of interest. Juniors and seniors, selected on the basis of written application, participate in this seminar.

### The Undergraduate Research Assistantship in the Humanities

An unusual opportunity for undergraduates to assist university faculty in major research projects, this assistantship is awarded to faculty members on a competitive basis. Each faculty member then chooses the student he or she thinks will best profit from the research experience. Selected students enroll for experiential education credit and receive a stipend.

### How to Apply

Students interested in any of these special educational opportunities should write or call:

**Gaines Center for the Humanities**
**232 East Maxwell Street**
**University of Kentucky**
**Lexington, KY 40506-0344**
**(606) 257-1537**

# THE GRADUATE SCHOOL

*Daniel R. Reedy, Ph.D., is Dean of The Graduate School.*

The University of Kentucky began offering graduate work in 1870, and awarding degrees in 1876. The Graduate School was organized as a distinct unit in 1912.

The Graduate School is concerned with advanced study and research carried on by the faculty and students of all colleges and departments. Under it the total graduate resources of the University are merged in order to promote the achievement of knowledge in an atmosphere of free and lively inquiry.

## GRADUATE DEGREES

Graduate work is offered in most colleges in the University. The following advanced degrees are conferred:

DOCTOR OF EDUCATION
DOCTOR OF MUSICAL ARTS
DOCTOR OF PHILOSOPHY
MASTER OF ARTS
MASTER OF ARTS IN EDUCATION
MASTER OF ARTS IN INTERIOR DESIGN, MERCHANDISING AND TEXTILES
MASTER OF BUSINESS ADMINISTRATION
MASTER OF CIVIL ENGINEERING
MASTER OF FINE ARTS
MASTER OF HEALTH ADMINISTRATION
MASTER OF MINING ENGINEERING
MASTER OF MUSIC
MASTER OF PUBLIC ADMINISTRATION
MASTER OF REHABILITATION COUNSELING
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING
MASTER OF SCIENCE IN CHEMICAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN COMMUNICATION DISORDERS
MASTER OF SCIENCE IN DENTISTRY
MASTER OF SCIENCE IN EDUCATION
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN ENGINEERING MECHANICS
MASTER OF SCIENCE IN FAMILY STUDIES
MASTER OF SCIENCE IN FORESTRY
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MANUFACTURING SYSTEMS ENGINEERING
MASTER OF SCIENCE IN MATERIALS SCIENCE AND ENGINEERING
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN INTERIOR DESIGN, MERCHANDISING AND TEXTILES
MASTER OF SCIENCE IN MINING ENGINEERING
MASTER OF SCIENCE IN NURSING
MASTER OF SCIENCE IN PHYSICAL THERAPY
MASTER OF SCIENCE IN PUBLIC HEALTH
MASTER OF SCIENCE IN HEALTH PHYSICS
MASTER OF SCIENCE IN RADIOLOGICAL MEDICAL PHYSICS
MASTER OF SOCIAL WORK
SPECIALIST IN EDUCATION

The degree of Doctor of Philosophy is offered with major work in the following fields: agricultural economics, agricultural engineering, anatomy and neurobiology, animal science, anthropology, biochemistry, biology, biomedical engineering, business administration, chemical engineering, chemistry, civil engineering, communication, computer science, crop science, economics, educational psychology, electrical engineering, engineering mechanics, English, entomology, geography, geology, studies in higher education, history, materials science and engineering, mathematics, mechanical engineering, microbiology, mining engineering, music, nursing, nutritional sciences, pharmaceutical sciences, pharmacology, philosophy, physics and astronomy, physiology, plant pathology, plant physiology, political science, psychology, public administration, sociology, soil science, Spanish, statistics, toxicology, and veterinary science.

### Interdisciplinary Graduate Programs

There are six interdisciplinary graduate programs administered in The Graduate School: Biomedical Engineering, Diplomacy and International Commerce, Health Administration, Nutritional Sciences, Public Administration, and Toxicology. Students interested in information on these programs should contact the program directors at the addresses listed below.

**Dr. Stephen Lai-Fook**
**Director of Graduate Studies**
**Biomedical Engineering**
**207 Rose Street**
**University of Kentucky**
**Lexington, KY 40506-0070**

**Dr. John Stempel, Director**
**The Patterson School of Diplomacy and International Commerce**
**455 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**

**Health Administration**
**102 Medical Center Annex 2**
**University of Kentucky**
**Lexington, KY 40536-0080**

**Dr. Linda Chen, Director**
**Nutritional Sciences**
**218 Research Lab #1**
**University of Kentucky**
**Lexington, KY 40506-0054**

**Dr. Genia Toma, Director**
**James W. Martin School of Public Policy and Administration**
**419 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**

**Dr. Larry W. Robertson,**
**Director of Graduate Studies**
**Graduate Center for Toxicology**
**204 Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40546-0054**

## ORGANIZATION OF THE GRADUATE SCHOOL

**The Graduate Faculty** consists of the Dean of The Graduate School and all persons appointed thereto by the President of the University. As the chief University agency for the promotion of the ideals of graduate study, it determines the policies of The Graduate School and makes recommendations to the University Senate on such matters as require the approval of that body. All rules affecting graduate work and the inauguration of new graduate programs must be approved by the Graduate Faculty.

**The Dean and His Office.** The Dean of The Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Senate relating to graduate studies.

The Graduate Council is composed of 18 members and the Dean of The Graduate School, who serves as chair. There are 16 faculty representatives and two student representatives. Associate deans serve in a nonvoting, ex officio capacity.

**The Graduate Council** approves or disapproves proposals concerning courses offered for graduate credit, and advises and lends assistance to the Dean of The Graduate School in his execution of policies and regulations determined by the Graduate Faculty.

**Directors of Graduate Studies.** A Director of Graduate Studies is appointed for each program of graduate study. Among other duties, each director serves as adviser to students majoring in his or her area.

## ADMISSION

Students seeking admission to The Graduate School must hold a baccalaureate degree from a fully accredited institu-

tion of higher learning. An overall undergraduate grade-point average of 2.5 and 3.0 on all graduate work is required by The Graduate School. Individual departments may require higher grade-point averages.

All applicants for admission to degree programs in The Graduate School must submit official scores on the verbal, quantitative and analytical portions of the Graduate Record Examination. Business Administration and Accounting may substitute the Graduate Management Admission Test for M.B.A., Ph.D., and accounting students. Also, applicants for the Public Administration and Health Administration programs may substitute the GMAT.

New students applying for admission must have two official transcripts sent by each institution of higher learning previously attended. Applicants may send official transcripts, issued by the Registrar in a sealed envelope, along with the application. All transcripts must be sent to The Graduate School.

To be official, records must bear the registrar's signature and/or official seal of the issuing institution. A summary of credit transferred and recorded on the transcript issued by the institution granting the degree will not suffice.

Application forms can be obtained by writing:

**The Graduate School**
**351 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**

Applications must be submitted no later than one month before the beginning of the term the applicant intends to begin graduate work. Students should refer to the *University Calendar* in the back section of this Bulletin.

### Advanced Degrees for Faculty Members

Members of the faculty, except those in the Community College System, having a rank higher than that of instructor may not be considered as candidates for degrees in the discipline in which they are employed and hold academic rank.

Faculty members pursuing degrees above the master's degree at the University may not hold more than a half time work assignment either during the two full-time, consecutive resident semesters preceding qualifying examinations or during the two semesters of full-time dissertation study immediately following the qualifying examination.

### University Scholars Program (Combined Master's/Bachelor's Degree Program)

At the University of Kentucky there are some particularly gifted and highly motivated students whose well-defined academic and career plans include graduate and professional study. The University Scholars program offers these students the opportunity and the challenge of integrating their undergraduate and graduate or professional courses of study in a single continuous program culminating in both a baccalaureate and master's degree.

Requirements for this program are listed in the *Special Academic Programs* section of this Bulletin.

### Graduating Seniors as Part-Time Graduate Students

A senior in the University of Kentucky lacking no more than six credit hours for graduation and having an undergraduate grade-point average of at least 2.5 on all work attempted may register in The Graduate School with the consent of his or her college dean and the Dean of The Graduate School. Approval of the appropriate Director of Graduate Studies is required if the student is to be an applicant for a degree. *The total load of such a student may not exceed 12 credit hours.* Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. A student applying for admission to The Graduate School under these conditions must fill out in duplicate a petition form listing the course or courses to be taken in order to complete the undergraduate requirements. Petition forms are available in The Graduate School. The petition must be approved by both deans concerned.

### Provisional Graduate Students

Students wishing to pursue a higher degree who are temporarily ineligible for regular graduate admission status may be recommended by the Director of Graduate Studies for provisional admission status. Students should refer to *The Graduate School Bulletin* for further information.

## INDEPENDENT STUDY PROGRAMS

### (Correspondence Courses)

No graduate credit is given for courses taken by correspondence.

## REGISTRATION AND CLASSIFICATION

All students expecting graduate credit must be enrolled in The Graduate School. Graduate students will conform to the general registration schedule of the University and may not enter later than the last allowable date set by the University Registrar.

Before registering, a graduate student must obtain his or her adviser's approval of the proposed program.

## FELLOWSHIPS AND ASSISTANTSHIPS

There are approximately 130 nonservice fellowships available in all areas of graduate work. Over 1,000 teaching or research assistantships are available from departments and other units of the University. Out-of-state tuition is remitted for full fellowship or assistantship holders and proportionate amounts are remitted for smaller awards.

Fellowship and assistantship decisions are generally made by the department or program in which the student seeks to enroll. Assistantships are awarded directly by the department. While fellowships are formally awarded by The Graduate School, the award is usually based upon the specific recommendation of a department.

Almost all fellowships and the greater majority of assistantships are awarded for the academic year. There are virtually no fellowships and only a small number of assistantships available which begin in the spring semester. Most departments make financial aid decisions for the next academic year in the period between February and April. All students interested in a fellowship or assistantship should make sure their applications are returned by that time. Later applicants will have a reduced chance of obtaining financial aid. All fellowships are awarded by early May. Most assistantships are also filled by that time, although students should check with the particular department for exact information.

There is a common application for financial assistance. Applicants interested in either fellowships or assistantships, but not both, may indicate their preference on the form.

After a department makes its financial aid decisions, students will be contacted. (If a student is interested in a fellowship **only**, notification will come from The Graduate School.) Any questions about the status of an application should be addressed to the Director of Graduate Studies in the department the student is seeking to enter.

## POST-BACCALAUREATE GRADUATE STUDENTS

Students who hold a baccalaureate degree and who wish to pursue graduate study without a degree objective may apply for admission as post-baccalaureate graduate students. Students should refer to *The Graduate School Bulletin* for further information.

# HONORS PROGRAM

*Christine Havice, Ph.D., is Director of the Honors Program.*

The Honors Program at the University of Kentucky serves an important function in the University's commitment to excellence in undergraduate education. Through its special curriculum and related academic activities, the Honors Program provides an unusual course of instruction for outstanding, highly motivated students.

**Purpose**

The Honors Program provides an intense, interdisciplinary educational experience designed to assure a challenging undergraduate education. The four Honors colloquia satisfy certain University Studies requirements as well as those established by the program.

**Selection of Honors Students**

Students interested in the Honors Program should complete an application, which consists of several questions and brief essays designed to elicit a sense of the individual's experience and commitment to academic excellence. (The one exception is Singletary Scholars, who automatically become members of the Honors Program.) First-year students generally should have a minimum high school grade-point average of 3.5 and an ACT composite of 28. However, students whose scores vary from these are encouraged to make their best case for admission via the application essays, which are always given serious consideration. Letters of recommendation, though not required, may also be submitted.

Upperclass, transfer, and returning students may also apply to the Honors Program through the middle of the junior year. Generally the selection committee looks for students of demonstrated achievement, as indicated by a college grade-point average of 3.0 or above, but any student who believes that he or she could benefit from and contribute to the program is invited to apply.

**The Honors Curriculum**

The Honors curriculum is designed to acquaint students with major ideas and intellectual developments which have shaped Western culture. The four multidisciplinary colloquia cover the historical range of thought from the ancient Greeks to the modern era by examining monuments and texts in various media, such as: Plato's *Republic*, a New York skyscraper, a Beethoven symphony, scientific discoveries by Galileo and Einstein, Virginia Woolf's *A Room of One's Own*, fairy tales, the Parthenon on the Acropolis, Kafka's *Trial*, St. Augustine's *Confessions*, and twentieth-century painting.

The colloquia are taught as interdisciplinary small-format seminars, emphasizing class discussion and exchange, critical thinking, special projects, and regular writing (free-writing, quizzes, essays, exams, and journals), in order to develop these important skills and encourage participatory learning styles.

Honors students are expected to maintain good academic standing to continue in the program; normally this is a cumulative grade-point average of 3.0 or better. In circumstances when academic performance drops below this level, the Director of the Honors Program will consult with the student to determine whether and by what means the student may restore performance to an acceptable level and may institute a period of probation and review.

During the junior and senior years students complete an independent project — a work of research or artistic expression, in collaboration with a faculty scholar/researcher — affording them the chance to identify a challenging topic and to design, carry out, and present their individual work.

**University Studies Requirements**

The Honors colloquia offer a special means of meeting the University Writing requirement (II.B) and the University Studies Humanities Disciplinary Requirement (III.C). Students with an ACT English score of 29 or better satisfy these requirements with three colloquia; all others satisfy these requirements with four colloquia. Honors students who complete all four colloquia also satisfy the University Studies Program Cross-Disciplinary requirement; this frees six credits for them to use to pursue other course work in Honors or elsewhere.

Students who drop out of the Honors Program before completing the requirements to satisfy these portions of University Studies will meet difficulties in making equivalents to any completed course work, due to the unique longitudinal, interdisciplinary structure of the curriculum.

**Graduating with Honors in the Program**

To graduate with a Certificate of Honors in the Honors Program, students must complete all four colloquia plus the Independent Project (minimum three hours credit) in the junior/senior year and maintain a cumulative grade-point average of 3.0 or better.

**Special Opportunities**

Students in the Honors Program have many opportunities, both in and out of the classroom, to develop and demonstrate academic excellence. The small size and informal method of instruction in the colloquia foster active learning. Informal conferences, special speakers, trips, and workshops allow students to explore topics and issues not regularly considered within University departmental offerings.

Students in the program may elect to live in Boyd and Patterson Halls, study-intensive, co-ed Honors residence halls equipped with a computer lab, seminar rooms, and library

Other social, service and cultural activities organized by and for Honors students include the Honors Program Student Advisory Council or HPSC (social and service activities), the JR/SR Network (career advising and preparation, support for Independent Project), and *JAR*, the campus literary magazine published by Honors Program students. Students may also participate in the Journal Project, for which they keep a journal during their undergraduate career, sharing the journal with a staff member, administrator, or faculty member who volunteers as an adviser.

Honors students in good standing are eligible for a number of special grants and scholarships during and at the conclusion of their undergraduate career. These include scholarships based on financial need, grants to support independent research conducted in the U.S. or abroad, scholarships to support study-travel for members of the Journal Project, the Diachun Award for students continuing studies in graduate school, and several other literary, service, and book awards.

**Benefits**

The greatest benefits Honors Program students enjoy are intensified intellectual development and a heightened personal awareness of the individual's place in his or her culture. A high percentage of graduates of the Honors Program enter graduate or professional schools.

**How To Apply**

Students interested in the Honors Program should write for an application to:

**Director, Honors Program**
**1153 Patterson Office Tower**
**University of Kentucky**
**Lexington, KY 40506-0027**

Applications must be received by June 1.

# HUMAN ENVIRONMENTAL SCIENCES

*Retia Scott Walker, Ph.D., is Dean of the College of Human Environmental Sciences. Claudia Peck, Ph.D., is Associate Dean for Research and Graduate Studies. J. Darlene Forester, Ph.D., is Associate Dean for Extension.*

Human Environmental Sciences is a science-based program that deals with human beings in their environmental context. It is concerned with the interaction between people and their social, cultural, economic and political environments. The focus is on improving lives of individuals and families in their home, work, community and world environments. The areas of study are directly tied to specialized fields and professional careers.

Men and women of all ages, races and various nationalities — with a wide range of aptitudes and interests — comprise the student body of the college. The diverse faculty have won many honors for their scholarship and research. The College of Human Environmental Sciences remains central to the mission of a land grant university where improving life for youth and families is a priority.

Offering individualized attention, the college prepares students for professional roles through academic work, practicum or field experience, and research.

There are three departments in the College of Human Environmental Sciences—Family Studies; Interior Design, Merchandising and Textiles; and Nutrition and Food Science.

### Accreditations and Approvals

All undergraduate programs in the College of Human Environmental Sciences are accredited by the American Home Economics Association.

Additionally, all programs and facilities which can be accredited or approved have achieved that recognition:

- Foundation for Interior Design Education Research (Interior Design program)
- American Dietetic Association (Dietetics programs — Coordinated Program is accredited, Didactic program is approved)
- National Association for the Education of Young Children (the Early Childhood Laboratory)
- Institute of Food Technologists (Food Science program)

### Unique Features of the College Facilities and Services

Research Center for Families and Children; Early Childhood Laboratory; Model Infant Day Care Center; Historic Costume Collection; Kelsay Kitchen; Computer Laboratory; Interior Design studios and gallery; The Family Center (personal and marriage counseling); Research and Development Center for School-Age Child Care and Early Childhood; Nutrition Research laboratories.

### Undergraduate Programs in Human Environmental Sciences

The University of Kentucky grants the following degrees in the College of Human Environmental Sciences:

- Bachelor of Arts in Interior Design
- Bachelor of Science in Dietetics
- Bachelor of Science in Family Studies
- Bachelor of Science in Food Science
- Bachelor of Science in Home Economics
- Bachelor of Science in Hospitality Management
- Bachelor of Science in Merchandising, Apparel and Textiles

Students pursuing the Bachelor of Science in Family Studies may select a major in individual and family development, family resource management and consumer studies, or early childhood education.

Students pursuing the Bachelor of Science in Food Science may select options in either food science or human nutrition.

Students pursuing the Bachelor of Science in Home Economics complete a major in home economics education.

## MINORS OFFERED

The following minors are available:

Family Studies

Merchandising, Apparel, and Textiles

Nutrition

### Scholarships

Over fifty scholarships are awarded each year to undergraduate and graduate students enrolled in programs in the College of Human Environmental Sciences. A complete listing of scholarships and application criteria is available from the Office of the Dean.

## GRADUATION REQUIREMENTS

All students in the College of Human Environmental Sciences must satisfy the following requirements:

### SPECIAL APPLICATION DEADLINES FOR HUMAN ENVIRONMENTAL SCIENCES

**Coordinated Program in Dietetics** Upper division program applicants (students who have 71 semester hours of lower division courses – special application, transcript(s), and recommendations are due by:

**Fall** Feb. 1

**Major in Interior Design** Upper division program applicants – special application, transcript(s), and portfolio are due by:

**Fall** Feb. 1

1. Complete University Studies requirements.
2. Complete the College requirements listed below.
3. Complete 128* credit hours with a minimum grade-point average of 2.0.**
4. Complete the required curriculum in the major program of the student's choice.
5. **Early Childhood Education Majors and Home Economics Education Majors only** – all students in this major must apply and be admitted to the professional Teacher Education Program in order to complete the Early Childhood Education program or the Home Economics Education program. (See the *College of Education* section in this Bulletin for additional information regarding admission to the Teacher Education Program.)

*Interior Design requires 132 hours for graduation.

**Early Childhood Education and Home Economics Education require a grade-point average of 2.5 for teacher certification.

**College Requirements**

HES 100 An Introduction to Professions in Human Environmental Sciences ..... 1
HES 400 Concepts in Human Environmental Sciences: Integration and Application ..... 2
One course in Human Environmental Sciences, outside the student's major prefix ..... 3

### Advising

All new students are assigned a faculty adviser during their first semester in the College of Human Environmental Sciences. The Freshman Advising and Retention program (FAR) is a unique service of the college. Designed to enhance student-faculty relationships and interaction, each freshman student and adviser meet several times during the critical adjustment period of the first semester on campus. A follow-up study of the FAR program has shown significant increases in student satisfaction of their first year college experience and increased retention into the sophomore year.

For more information, contact:

**College of Human Environmental Sciences**
**103 Erikson Hall**
**University of Kentucky**
**Lexington, KY 40506-0050**

## BACHELOR OF SCIENCE IN FAMILY STUDIES

The Department of Family Studies is committed to the well-being of individuals and families. Its purpose is to prepare professionals to work with individuals and families on an applied level through an interdisciplinary approach. The department offers three undergraduate majors: 1) individual and family development; 2) family resource management and consumer studies, and 3) early childhood education. Students in these majors earn the Bachelor of Science in Family Studies. A minor in family studies encompassing all areas of the department is available.

In addition to fulfilling University Studies requirements and College requirements, each student must complete the following:

### Individual and Family Development

**University Studies** **Hours**

**Inference and Communication Skills:**
*STA 200 Statistics: A Force in Human Judgment ..... 3
*COM 181 Basic Public Speaking ..... 3
*Recommended

**Disciplinary Requirements:**
Social Sciences
Select two courses (recommended):
ECO 201 Principles of Economics I ..... 3
FAM 252 The Individual, Marriage, and Family ..... 3
PSY 100 Introduction to Psychology ..... 4
SOC 101 Introductory Sociology ..... 3
ANT 121 Introduction to Cultural Anthropology ..... 3

**Cross-Disciplinary Requirement:**
FAM 253 Human Sexuality: Development, Behavior and Attitudes **and**
ANT 255 Human Sexuality in Cross-Cultural Perspective ..... 6
**OR**
NFS 101 Food and Nutrition for Man **and**
ANT 235 Food and Culture ..... 6
Recommended sequences.

**Premajor Requirements** **Hours**

PSY 100 Introduction to Psychology ..... 4
SOC 101 Introductory Sociology **or**
ANT 121 Introduction to Cultural Anthropology .... 3
NFS 101 Food and Nutrition for Man ..... 3
COM 181 Basic Public Speaking ..... 3
STA 200 Statistics: A Force in Human Judgement ..... 3
ENG 203 Business Writing **or**
ENG 205 Intermediate Writing **or**
ENG 305 Advanced Writing **or**
ENG 401 Special Topics in Writing (subtitle required) ..... 3

**Major Requirements**

FAM 250 Consumer Issues ..... 3
FAM 251 Personal and Family Finance ..... 3
FAM 252 The Individual, Marriage and Family .... 3
FAM 253 Human Sexuality: Development, Behavior and Attitudes ..... 3
FAM 254 Developmental Psychology ..... 3
FAM 255 Child Development **or**
FAM 357 Contemporary Adolescence ..... 3
FAM 257 Introduction to Family Intervention: Working With Families and Individuals ..... 3
FAM 390 Introduction to Research in Family Studies ..... 3
FAM 354 The Family in Cross-Cultural Perspective **or**
FAM 544 Cultural Diversity in American Children and Families ..... 3
FAM 557 Infant Development **or**
FAM 585 Aging and Environment ..... 3
FAM 499 Field Experiences in Individual and Family Studies ..... 3

**Plus** a minimum of three additional hours in upper level FAM courses.

**Free Electives**

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

### Family Resource Management and Consumer Studies

**University Studies** **Hours**

**Inference and Communication Skills:**
*STA 200 Statistics: A Force in Human Judgment ..... 3
*COM 181 Basic Public Speaking ..... 3
*Recommended

**Disciplinary Requirements:**
Social Sciences
Select two courses (recommended):
ECO 201 Principles of Economics I ..... 3
FAM 252 The Individual, Marriage, and Family ..... 3
PSY 100 Introduction to Psychology ..... 4
SOC 101 Introductory Sociology ..... 3
ANT 121 Introduction to Cultural Anthropology ..... 3

**Cross-Disciplinary Requirement:**
FAM 253 Human Sexuality: Development, Behavior and Attitudes **and**
ANT 255 Human Sexuality in Cross-Cultural Perspective ..... 6
**OR**
NFS 101 Food and Nutrition for Man **and**
ANT 235 Food and Culture ..... 6
Recommended sequences.

**Premajor Requirements** **Hours**

PSY 100 Introduction to Psychology ..... 4
NFS 101 Food and Nutrition for Man ..... 3
SOC 101 Introductory Sociology **or**
ANT 121 Introduction to Cultural Anthropology .... 3
CS 101 Introduction to Computing I ..... 3
COM 181 Basic Public Speaking ..... 3
STA 200 Statistics: A Force in Human Judgment ..... 3
ECO 201 Principles of Economics I ..... 3
ECO 202 Principles of Economics II ..... 3
ENG 203 Business Writing **or**
ENG 205 Intermediate Writing **or**
ENG 305 Advanced Writing **or**
ENG 401 Special Topics in Writing (subtitle required) ..... 3

**Major Requirements**

FAM 250 Consumer Issues ..... 3
FAM 251 Personal and Family Finance ..... 3
FAM 252 The Individual, Marriage and Family .... 3
FAM 257 Introduction to Family Intervention: Working with Families and Individuals ..... 3
FAM 304 Personal and Family Risk Management ..... 3
FAM 390 Introduction to Research in Family Studies ..... 3
FAM 402 Family Economics and Management Issues ..... 3
FAM 463 Concepts of Personal and Family Management ..... 3
FAM 486 Field Experiences in Family Resource Management ..... 3
FAM 563 Families, Legislation and Public Policy ..... 3
Students must choose a minimum of six additional hours in FAM courses.

**Free Electives**

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

### Early Childhood Education

Early Childhood Education is an interdisciplinary program which will prepare educators to work with children, birth through age five, in public pre-primary classes and non-public institutions including day care, private preschool, and private kindergarten. The program is approved to prepare graduates to seek the Kentucky teaching certificate in Interdisciplinary Early Childhood Education.

Completion of the teacher preparation program is one step toward certification. Additionally, graduates must complete an assessment of teaching performance and pass written tests. The National Teachers Examination (NTE Core Battery) and a specialty exam in interdisciplinary early childhood education are required. The certificate allows graduates to work with typical and atypical children.

**NOTE:** At the time of publication, program requirements for Early Childhood Education were under revision.

**University Studies** **Hours**

**Oral Communication Requirement**
COM 181 Basic Public Speaking ..... 3

**Social Sciences**
PSY 100 Introduction to Psychology ..... 4
FAM 252 The Individual, Marriage, and Family ..... 3

**Humanities**
*HIS 108/109 History of the United States Through 1865/Since 1865 ..... 6
*Recommended sequence.

**Cross-Disciplinary Requirement**
*NFS 101 Food and Nutrition for Man ..... 3
*ANT 235 Food and Culture ..... 3
*Recommended sequence.

**Premajor Requirements** **Hours**

COM 181 Basic Public Speaking ..... 3
NFS 101 Food and Nutrition for Man ..... 3
PSY 100 Introduction to Psychology ..... 4
SOC 101 Introduction to Sociology ..... 3
FAM 252 The Individual, Marriage, and Family ... 3

All students in Early Childhood Education must apply, be admitted to, and be retained in a Teacher Education Program (TEP), and complete a state approved degree program in order to receive an education certificate as discussed earlier. Students who are interested in certification in Early Childhood Education need to meet with a certification officer in the College of Education **prior** to completing 60 semester hours to discuss state certification and

TEP requirements. A minimum 2.5 cumulative GPA is required to be eligible to apply for admission to TEP. TEP applications will be reviewed for students who have completed, or will complete during the semester in which they apply, 60 semester hours, including EDP 202, EDS 375, FAM 255, and FAM 256 with a grade of **C** or better. (See the *College of Education* section of this Bulletin for additional information regarding state requirements and TEP.)

| **Major Requirements** | **Hours** |
|---|---|
| EDP 202 Human Development and Learning | 3 |
| EPE 301 Education in American Culture | 3 |
| EDC 317 Introduction to Instructional Media | 1 |
| FAM 255 Child Development | 3 |
| FAM 350 Curriculum Planning in Early Childhood Education | 4 |
| FAM 507 Assessment of Young Children | 2 |
| FAM 553 The Child in His/Her Family | 3 |
| FAM 411 Student Teaching in Early Childhood Education | (12) |
| FAM 256 Guidance Strategies for Working with Young Children | 3 |
| FAM 390 Introduction to Research in Family Studies | 3 |
| FAM 544 Cultural Diversity in American Children and Families | 3 |
| FAM 552 Administration and Supervision in Early Childhood Education Programs | 3 |
| FAM 555 Fostering Cognitive Development in Children | 3 |
| FAM 557 Infant Development | 3 |
| STA 200 Statistics: A Force in Human Judgement | 3 |
| CS 101 Introduction to Computing I **or** | |
| EDS 558 Problems in Special Education: (Variable topic) | 3 |
| EDS 375 Introduction to Education of Exceptional Children | 3 |
| EDS 510 Early Childhood Special Education | 3 |
| EDS 357 Initial Practicum in Special Education | 1 |
| CD 512 Speech-Language Development and Disorders for the Mildly Handicapped | 3 |
| EDS 513 Legal and Parental Issues in Special Education | 3 |
| EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners | 3 |
| EDS 520 Survey of Severe Developmental Disabilities **or** | |
| EDS 530 Characteristics of Mental Retardation | 3 |
| **Special Education Courses** | |
| KHP 560 Motor Developments in Infants and Young Children | 3 |
| LIS 510 Children's Literature and Related Materials | 3 |

### Minor in Family Studies

Any student interested in a minor in family studies should file an application with the department prior to entering the program.

**Minor Requirements**

| | |
|---|---|
| FAM 251 Personal and Family Finance | 3 |
| FAM 252 The Individual, Marriage and Family | 3 |
| FAM 255 Child Development | 3 |

**Minor Electives**

Twelve additional hours in Family Studies from the following with six hours at the 300-, 400- or 500-level:

FAM 250, 253, 254, 256, 354, 357, 463, 509, 553, 554, 563.

## INTERIOR DESIGN, MERCHANDISING AND TEXTILES

The Department of Interior Design, Merchandising and Textiles is concerned with the quality of life relevant to the near environment. The department offers the Bachelor of Arts in Interior Design and the Bachelor of Science in Merchandising, Apparel, and Textiles. More information on each undergraduate program is outlined below.

## BACHELOR OF ARTS IN INTERIOR DESIGN

Professional interior designers work within areas requiring an understanding of systems, functions, scientific and technical processes, as well as human factors. They must also integrate aesthetic considerations into the spaces for which they design.

The dramatic evolution of the interior design profession over the last two decades is reflected in the interior design program at the University of Kentucky. The curriculum emphasizes the design, technical, problem-solving, and management skills needed to work with allied environmental design professions and to provide high quality environments for human use.

Graduates from the program accept entry-level professional positions in a variety of settings including interior design firms, departments of space planning or interior design in corporations, public institutions, or allied professions. Students also may choose to continue their education with specialized study in interior design or the allied design professions.

The program in Interior Design is fully accredited by the Foundation for Interior Design Education Research.

In addition to fulfilling University Studies and College requirements, students must complete the requirements listed below.

### Admission Policy for Interior Design

**Lower Division Admission**

Admission to the University is adequate for admission to the lower division interior design program courses (100 through 200) but does not guarantee admission to upper division studio courses (above 200 level).

**Upper Division Admission**

Admission to upper level interior design studio courses is dependent upon the qualifications and preparation of the applicant. Since the number of applicants admitted to upper level interior design studio (DMT 355) will be limited, applicants will be examined on a comparative and competitive basis.

To be considered for admission to upper division interior design studio (DMT 355) an applicant must fulfill the following requirements:

1. Make application by February 1 for admission to upper division studio in the fall semester of the next academic year.
2. Complete or be currently enrolled in all lower division interior design program requirements (studio and lecture).
3. Submit for blind review a portfolio of work completed in lower division interior design studio courses and/or an Interior Design Aptitude Test (e.g., a home project assignment and/or controlled test taken by the candidate). Specific requirements for the portfolio and review and/or Design Aptitude Test will be available from the Interior Design, Merchandising and Textiles Department office in September of each academic year.
4. Give a verbal presentation (specific requirements available, see #3 above).

**Transfer Students: From Within the University**

Transfer students from within the university must complete all lower division interior design program requirements or equivalents; make application for admission to upper division interior design studio; and complete all requirements of the portfolio review (see #1 though 4 above).

**Transfer Students: From Other Interior Design Programs**

Applicants from other interior design programs must fulfill the equivalent of all lower division interior design program requirements, provide verification by transcript and meet all portfolio requirements (described above) before admittance into any upper division interior design studio. Applicants applying for a studio number higher than DMT 355 must supply additional course work in their portfolio. Application indicating applicant's intent to participate in the review process must be received no later than February 1 for admission into any upper division studio during the next academic school year.

**Review Process**

Admittance to upper division interior design studio (DMT 355) will be in order of priority based on a review by the Interior Design Admissions Committee. The committee will conduct a blind review of the applicant's portfolio. A non-blind review of each applicant's verbal presentation, grades in lower division studio and non-studio courses, and professional aptitude will also be evaluated by the Interior Design Admissions Committee. The review process will occur only once each academic year during the spring semester. Approval for admission into an upper-division studio in the spring is only valid for the following fall semester. A student who is admitted to an upper level studio in the spring but who does not complete the studio the following fall must go through the portfolio review process again for admittance.

**Major Specialization (78 hours)**

The eight prescribed studio courses designated

with an asterisk (*) must be taken in sequence to complete the professional requirements.

**Premajor/Lower Division Requirements**

A-H 105 Ancient Through Medieval Art ..... 3
COM 181 Basic Public Speaking ..... 3
DMT 121 Textiles ..... 4
DMT 142 History and Theory of Interior Design ... 3
DMT 151 Creative Design Foundations* ..... 5
DMT 244 History and Theory of 20th Century Design ..... 3
DMT 253 Interior Design Graphic Communication* ..... 5
DMT 254 Color Theory and Application* ..... 5
DMT 335 Interior Building Systems I ..... 3

**Major/Upper Division Requirements**

DMT 234 Human Factors of Design Theory ..... 3
DMT 355 Interior Design Studio 1* ..... 5
DMT 356 Interior Design Studio 2* ..... 5
DMT 365 Interior Design Finish Materials ..... 3
DMT 366 Interior Building Systems II ..... 3
DMT 520 Textiles for Interiors ..... 3
DMT 557 Interior Design Studio 3* ..... 5
DMT 558 Interior Design Studio 4* ..... 5
DMT 568 Interior Design Professional Practice ..... 3

**Professional Support (9 hours)**

With the academic adviser's approval, the student will choose professional support courses totalling nine hours from art history, history of landscape architecture, marketing, architecture, or art studio.

**Designated Design Support (6 hours)**

The student will select six hours from the following list of courses:

DMT 480 Merchandising and Design Study Tour ..... 1-3
DMT 569 Computer-Aided Design ..... 3
DMT 589 Res/Pres I: Introductory Concepts of Restoration and Preservation ..... 3
DMT 593 Pro/Prac II: Professional Practice and Field Experience ..... 3

**Electives (8 hours)**

## BACHELOR OF SCIENCE IN MERCHANDISING, APPAREL, AND TEXTILES

In the Merchandising, Apparel, and Textiles major, students study the concepts and skills necessary for understanding the trends, needs, and uses of textiles and clothing products in a variety of commercial and home situations. Students gain awareness of the interrelationships of people, materials, fashion and technology in the dynamic physical, social, economic and aesthetic environment.

In addition to satisfying University Studies and College requirements, each student must complete the following:

**University Studies** **Hours**

**Inference and Communication Skills**

MA 109 College Algebra ..... 3
PHI 120 Introductory Logic ..... 3
STA 200 Statistics: A Force in Human Judgment ..... 3

**Disciplinary Requirements**

Humanities:
HIS 104 A History of Europe Through the Mid-Seventeenth Century ..... 3
HIS 105 A History of Europe From the Mid-Seventeenth Century to the Present ..... 3

**Premajor Requirements** **Hours**

Writing course (200 level or above) ..... 3
COM 181 Basic Public Speaking ..... 3
FAM 250 Consumer Issues ..... 3
SOC 101 Introductory Sociology* ..... 3
PSY 100 Introduction to Psychology* ..... 4
ECO 201 Principles of Economics I ..... 3
ECO 202 Principles of Economics II ..... 3

*These courses also may be used to fulfill University Studies requirements.

**Major Requirements**

DMT 114 An Introduction to Merchandising ..... 3
DMT 121 Textiles ..... 4
DMT 237 Visual Design in Dress ..... 3
DMT 247 Interdisciplinary Approach to Dress ..... 3
DMT 306 Analysis of Apparel Quality ..... 3
DMT 310 Apparel Industry ..... 3
DMT 415 Applied Industry Planning and Control ..... 3
DMT 450 Introduction to Research in Merchandising, Apparel and Textiles ..... 3
DMT 525 Economics of the Apparel and Textile Industry ..... 3

**Major Focus**

After completion of the third semester, a student should select a major focus.

**Focus: Merchandising**

DMT 312 Applied Merchandising Techniques ..... 3
DMT 414 Merchandising Procedures ..... 3
DMT 515 Specification and Evaluation of Textiles and Apparel ..... 3
**or**
DMT 547 Social and Psychological Aspects of Apparel ..... 3
**plus**
Additional 12 hours must be selected from DMT courses. **Note:** nine of the twelve additional hours must be taken at the 500 level.

**Focus: Apparel/Design**

DMT 232 Apparel Production Studio ..... 3
DMT 432 Apparel Design ..... 3
DMT 532 Advanced Apparel Production Studio (subtitle required) ..... 3
DMT 545 Clothing for Specific Needs ..... 3
**plus**
Additional nine hours must be selected from DMT courses. **Note:** six of the nine additional hours must be taken at the 500 level.

**Focus: Apparel/Textiles**

DMT 545 Clothing for Specific Needs ..... 3
DMT 547 Social and Psychological Aspects of Apparel ..... 3
DMT 533 History of Costume
**or**
DMT 522 History of Textiles ..... 3
DMT 515 Specification and Evaluation of Textiles and Apparel ..... 3
**or**
DMT 520 Textiles for Interiors ..... 3
**plus**
Additional 12 hours must be selected from DMT courses. **Note:** nine of the twelve additional hours must be taken at the 500 level.

**Professional Support (15 hours)**

ACC 201 Principles of Accounting ..... 3
MKT 300 Marketing Management ..... 3

Select one from:
COM 281, COM 252, COM 325 ..... 3
Selection ..... 6
Six hours in courses are to be chosen with approval of the academic adviser from areas such as business, chemistry, communication, computer science, fine arts, history, human environmental sciences and social sciences.

**Electives (approximately 6 hours)**

### Minor in Merchandising, Apparel, and Textiles

Students interested in this minor should file an application with the department and contact the Human Environment academic adviser in the chairperson's office.

**Minor Requirements**

DMT 114 An Introduction to Merchandising ..... 3
DMT 120 Textiles for Consumers ..... 3
DMT 237 Visual Design in Dress ..... 3
DMT 247 Interdisciplinary Approach to Dress ..... 3
DMT 310 Apparel Industry ..... 3

**Minor Electives**

Students must select three additional DMT courses. A minimum of 9 credit hours is required.

## B.S. in Home Economics with a major in HOME ECONOMICS EDUCATION

Home Economics education is an option in the Agriculture Education, Communications, Leadership, and Home Economics Education program, a cooperative program between the Colleges of Human Environmental Sciences and Agriculture. Home Economics Education students receive the B.S. in Home Economics. They are prepared for careers in teaching, extension services, consumer education, adult education, and related activities which focus on teaching. Professional education courses in teaching methods and supervised teaching at the middle and high school levels are included in the program.

All students must apply and be admitted to the professional Teacher Education Program. Students should refer to the *College of Education* section of this Bulletin for information on criteria for the Teacher Education Program.

In addition to University Studies Program requirements, all students must complete the following:

### College of Human Environmental Sciences Requirement

HES 100 An Introduction to Professions in Human Environmental Sciences ..... 1
HES 400 Concepts in Human Environmental Sciences: Integration and Application ..... 2

### Core Requirements

GEN 100 Issues in Agriculture: The Development of Modern Agriculture ..... 3
GEN 200 Issues in Agriculture: Contemporary Problems in Agriculture and Forestry ..... 3
GEN 101 The Economics of Food and Agriculture ..... 3
GEN 102 The Dynamics of Rural Social Life ..... 3
NFS 101 Food and Nutrition for Man ..... 3
FAM 250 Consumer Issues ..... 3
AED/HEE/AGC/SOC 362 Practicum in Vocational Education, Agricultural Communications, and Leadership ..... 3
AGC/HES 320 Survey of Agriculture and Consumer Media ..... 3

### Home Economics Education

HEE 210 Introduction to Vocational Education .... 3
HEE 580 Methods of Teaching Vocational Education I ..... 3
HEE 586 Methods in Teaching Vocational Education II ..... 3
HEE 501 Practicum in Vocational Education ..... 12

### Specialization Component

To be selected from courses in the College of Human Environmental Sciences. During the sophomore year each student is required to develop a Plan of Study that details the course work to be taken during the junior and senior years.

In order to be certified to teach home economics, a student must take those courses which are required for certification.

**NOTE:** Teaching Education Program Admission Requirements are required for all those students who are going to teach.

In addition to the requirements listed above, candidates for teacher certification must complete 1,000 hours of work experience, under guidance, that will help develop homemaking skills and insight into the problems of homemakers as wage earners. The 1,000 hours must be planned with the adviser prior to the experiences.

Candidates for teacher certification must also complete 56 hours of clinical and field experiences, under guidance, in the middle grades and secondary level in addition to those acquired in conjunction with courses.

### Free Electives

Students will choose free elective hours to complete 128 hours minimum total for graduation.

## NUTRITION AND FOOD SCIENCE

The Department of Nutrition and Food Science provides sound undergraduate and graduate programs in foods and nutrition, and is concerned with research and extension services.

The majors offered are Nutrition and Food Science (with options in Dietetics and Hospitality Management) and Food Science (with options in Food Science and Human Nutrition).

A minor in nutrition is also available.

## BACHELOR OF SCIENCE IN DIETETICS

Dietetics prepares professionals who are recognized for expertise in food and nutrition. Graduates of the Dietetics program function as entry level professionals with opportunities for practice in clinical and community dietetics, food service management, and business.

Students in dietetics choose either Program Option A or B. Both options lead to the Bachelor of Science in Dietetics and fulfill the knowledge requirements established by the American Dietetic Association (ADA) which approves and accredits the programs.

**Option A**, designated as the didactic program in dietetics (DPD), provides the academic curriculum as "approved" by the ADA for Plan V. Completion of this didactic curriculum provides "eligibility" to apply for a supervised practice experience which may be either an ADA accredited dietetic internship (D.I.) or an ADA approved preprofessional practice program (AP4). Students must consider the highly competitive scenario in acquiring acceptance to either supervised practice. Successful completion of the supervised practice provides "eligibility" to write the national registry examination of the Commission of Dietetic Registration which grants use of the nationally recognized credential "R.D.," registered dietitian. Option A has ADA approval for this Plan V program through the year 2000.

**Option B**, the Coordinated Program in Dietetics (CP) provides the academic curriculum *and* the supervised practice experience. Students who have completed the premajor requirements and are interested in the "coordinated" approach to attaining the didactic and supervised practice at UK may apply for admission to the CP in dietetics which requires two years of study combined with supervised practice. Option B, CP, is an ADA "accredited" program for which admission is selective. Graduates of Option B are "eligible" to write the CDR registry examination at the first available examination date.

Admission to the University of Kentucky does not guarantee admission to the Coordinated Program (CP). A limited number of students who have completed the required preprofessional courses will be admitted on the basis of cumulative grade-point average and other criteria indicating potential for becoming a successful dietitian. Application to CP should be made by February 1 prior to potential fall admission. Program application materials should include an application form, a letter of professional goals and qualifications, three letters of reference, and a personal interview. The CP Admissions committee considers grade-point average, letters of recommendation, letter of application, work experience, honors and extracurricular activities. The personal interview evaluates communication skills, knowledge of the profession, goals, organizational and leadership skills.

Applicants will be notified of provisional acceptance before UK's advance registration dates for the ensuing fall semester. Final acceptance depends on acceptable completion of the work in progress at the time of the application. Transfer students are urged to contact the Director of CP for a preliminary evaluation of credits well in advance of the application date.

In addition to fulfilling the University Studies and College requirements, students must complete the following requirements:

| Premajor Requirements | Hours |
|---|---|
| ANT 235 Food and Culture | 3 |
| BIO 104 Animal Biology | 3 |
| BIO 208 Principles of Microbiology | 3 |
| CHE 105 General College Chemistry I | 3 |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| CHE 236 Survey of Organic Chemistry | 3 |
| **OR** CHE 230/232 Organic Chemistry I and II | 6 |
| COM 181 Basic Public Speaking | 3 |
| **OR** COM 252 Introduction to Interpersonal Communication | 3 |
| **OR** COM 287 Persuasive Speaking | 3 |
| ECO 201 Principles of Economics I | 3 |
| NFS 204 Principles of Food Preparation | 3 |
| NFS 212 Introductory Nutrition | 3 |
| PGY 206 Elementary Physiology | 3 |
| **OR** PGY 412G Principles of Human Physiology Lectures | 4 |
| PSY 100 Introduction to Psychology | 4 |
| SOC 101 Introductory Sociology | 3 |
| STA 200 Statistics: A Force in Human Judgment | 3 |

### Major Requirements

Prior to beginning the major requirements, students should register a choice of Option A or Option B with the Office of Student Services, 103 Erikson Hall.

| | Hours |
|---|---|
| NFS 301 Introduction to the Dietetics Profession | 3 |
| NFS 304 Experimental Foods | 3 |
| NFS 311 Nutritional Biochemistry | 3 |
| NFS 312 Nutrition in the Life Cycle | 2 |
| NFS 314 Dietetics: Counseling and Communication | 2 |
| NFS 340 Institutional Purchasing | 3 |
| NFS 342 Quantity Food Production | 5 |
| NFS 344 Food Service Accounting | |
| **OR** ACC 201 Principles of Accounting | 3 |
| NFS 346 Basic Management Principles of Food Service | |
| **OR** MGT 301 Business Management | 3 |
| NFS 408G Seminar in Food and Nutrition | 1 |
| NFS 503 Community Nutrition | 3 |
| NFS 510 Advanced Nutrition | 3 |
| NFS 511 Therapeutic Nutrition | 3 |
| NFS 513 Advanced Therapeutic Nutrition | 2 |

### Option Requirements

One option must be completed concurrently with the major requirements stated above.

**Option A** – Didactic Program in Dietetics (DPD)

| | |
|---|---|
| NFS 546 Institution Organization and Management | 3 |
| NFS 580 Dietetics Pre-Professional Practice | 1-6 |

**Option B** – Coordinated Program in Dietetics (CP)

Option B is a selective admission program. See previous statement regarding admission procedures and criteria.

| | |
|---|---|
| NFS 800 Nutrition in the Life Cycle: Practicum* (co-req: NFS 312) | 1 |
| NFS 808 Community Nutrition: Practicum* (co-req: NFS 503) | 2 |
| NFS 810 Therapeutic Nutrition: Practicum* (co-req: NFS 513) | 3 |
| NFS 812 Food Service Systems: Practicum* (co-req: NFS 346) | 3 |
| NFS 814 Advanced Food Service Systems Practicum* | 5 |
| NFS 816 Advanced Therapeutic Nutrition Practicum* | 5 |
| NFS 818 Evaluation of Dietetic Practices* | 2 |

*800-level course requires admission to CP.

**Electives**

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Requests for applications or further information may be directed to:

**Director, Coordinated Program**
**Department of Nutrition**
**and Food Science**
**212 Funkhouser Building**
**University of Kentucky**
**Lexington, KY 40506-0054**

## BACHELOR OF SCIENCE IN FOOD SCIENCE

The Bachelor of Science in Food Science program in the Department of Nutrition and Food Science includes two options: Food Science and Human Nutrition.

The Food Science option focuses on the fundamentals of food chemistry, food microbiology, food processing, food engineering, nutrition and statistics. The program is accredited by the Institute of Food Technologists. The curriculum is administered by the Department of Nutrition and Food Science, College of Human Environmental Sciences, and the Department of Animal Sciences, College of Agriculture.

The Human Nutrition option offers appropriate preparation for further study in nutritional sciences and health-related sciences, particularly public health and preventive medicine.

The outlook for employment in most food-related industries is very bright. There is a continuing and increasing demand for graduates by the various state, federal and municipal agencies.

A Food Science curriculum is also available in the College of Agriculture.

In addition to University Studies and College requirements, each student must complete the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| PSY 100 Introduction to Psychology | 4 |
| ECO 201 Principles of Economics I **or** | |
| ECO 202 Principles of Economics II | 3 |
| SOC 101 Introductory Sociology **or** | |
| ANT 121 Introduction to Cultural Anthropology | 3 |
| CS 101 Introduction to Computing I | 3 |
| MA 113 Calculus I or equivalent | 4 |
| CHE 105 General College Chemistry I | 3 |
| CHE 107 General College Chemistry II | 3 |
| CHE 115 General Chemistry Laboratory | 3 |
| CHE 236 Survey of Organic Chemistry **or** | 3 |
| CHE 230 Organic Chemistry I **and** | 3 |
| CHE 231 Organic Chemistry Laboratory I | 2 |
| STA 291 Statistical Method **or** | 3 |
| STA 370 Introduction to Statistics | 4 |
| PHY 211 General Physics | 5 |
| BIO 104 Animal Biology | 3 |
| BIO 208 Principles of Microbiology | 3 |
| BIO 209 Introductory Microbiology Laboratory | 2 |

**Premajor Specialization**

**Option A Food Science**

| | **Hours** |
|---|---|
| COM 181 Basic Public Speaking | 3 |
| ENG 203 Business Writing | 3 |

**Option B Human Nutrition**

| | **Hours** |
|---|---|
| PHY 213 General Physics | 5 |
| BIO 105 Animal Biology Laboratory | 1 |
| ANA 206 Basic Human Anatomy | 3 |
| CHE 226 Analytical Chemistry | 5 |

| **Major Requirements** | **Hours** |
|---|---|
| NFS 212 Introductory Nutrition | 3 |
| NFS 311 Nutritional Biochemistry | 3 |
| NFS 315 Nutritional Biochemistry Laboratory | 1 |
| NFS 312 Nutrition in the Life Cycle | 2 |
| FSC 530 Food Microbiology | 5 |
| FSC 434G Food Chemistry | 4 |

**Major Specialization**

**Option A Food Science**

| | **Hours** |
|---|---|
| NFS 204 Principles of Food Preparation | 3 |
| NFS 504 Food Science Research | 3 |
| NFS 514 Food Preservation | 3 |
| NFS 560 Food and the Consumer | 3 |
| AEN 340 Principles of Food Engineering | 4 |
| FSC 535 Food Analysis | 4 |
| FSC 430G Sensory Evaluation of Foods | 3 |
| FSC 536 Food Processing | 4 |

**Option B Human Nutrition**

| | **Hours** |
|---|---|
| NFS 408G Seminar in Food and Nutrition | 1 |
| NFS 510 Advanced Nutrition | 3 |
| NFS 511 Therapeutic Nutrition | 3 |
| NFS 516 Maternal and Child Nutrition | 3 |
| PGY 412G Principles of Human Physiology Lectures | 4 |
| **or** | |
| BIO 404G Principles of Genetics | 4 |
| **and** 8 additional hours from other courses such as: | |
| BCH 401G Fundamentals of Biochemistry | 3 |
| BIO 350 Animal Physiology | 4 |
| BIO 404G Principles of Genetics* | 4 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |
| NFS 591 Special Problems in Foods and Nutrition* | 1-3 |
| PGY 412G Principles of Human Physiology Lectures* | 4 |
| **and/or** other courses as approved by the faculty | |

*If not already taken in this option.

**Electives**

Electives should be selected by the student to complete the minimum total of 128 hours required for graduation.

## BACHELOR OF SCIENCE IN HOSPITALITY MANAGEMENT

In the Hospitality Management program option in Nutrition and Food Science, which leads to the B.S. in Hospitality Management, students acquire the specialized knowledge needed for careers in the hospitality industry. They also receive training in the basic functions, objectives, and techniques of management. The student is prepared for managerial positions in hotels, restaurants, non-commercial food service and tourism areas, as well as positions as purchasing agents, food service equipment specialists, food service planning specialists, and other careers.

In addition to fulfilling University Studies and College requirements, each student must complete the following:

| **Premajor Requirements** | **Hours** |
|---|---|
| Non-major track of Biology for University Studies | |
| PSY 100 Introduction to Psychology | 4 |
| COM 181 Basic Public Speaking | 3 |
| NFS 101 Food and Nutrition for Man | 3 |
| HMT 120 Introduction to Hospitality and Tourism Management | 2 |
| CS 101 Introduction to Computing I | 3 |
| MA 109 College Algebra | 3 |
| Advanced writing course (200 level or above) | 3 |

| **Major Requirements** | **Hours** |
|---|---|
| ACC 201 Principles of Accounting | 3 |
| ACC 202 Principles of Accounting | 3 |
| ECO 201 Principles of Economics I | 3 |
| ECO 202 Principles of Economics II | 3 |
| STA 200 Statistics: A Force in Human Judgment | 3 |
| NFS 204 Principles of Food Preparation | 3 |
| NFS 340 Institutional Purchasing | 3 |
| NFS 342 Quantity Food Production | 5 |
| NFS 346 Basic Management Principles of Food Service | 3 |
| HMT 210 Hotel Rooms Division Management | 3 |
| HMT 301 Principles of Travel and Tourism | 3 |
| HMT 499 Hospitality Senior Field Experience | 3 |
| HMT 420 Hospitality Managerial Accounting | 3 |
| HMT 488 Management Issues and Analysis in Hospitality Management | 3 |
| FIN 300 Corporation Finance | 3 |
| MKT 300 Marketing Management | 3 |
| MKT 310 Behavioral Systems in Marketing | 3 |
| MGT 301 Business Management | 3 |

**Electives**

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

### Minor in Nutrition

Any student wishing to minor in nutrition should file an application with and be interviewed by the chairperson of the Department of Nutrition and Food Science prior to entering the program. After the interview, the student should provide his or her college dean with a copy of the minor program requirement sheet.

| **Preminor Requirements** | **Hours** |
|---|---|
| BIO 104 Animal Biology | 3 |
| CHE 105 General College Chemistry I | 3 |
| CHE 107 General College Chemistry II | 3 |
| NFS 310 Introduction to the Biochemistry of Foods **or** | 2 |
| CHE 236 Survey of Organic Chemistry | 3 |
| PGY 206 Elementary Physiology (or equivalent) | 3 |

| **Minor Requirements** | |
|---|---|
| NFS 212 Introductory Nutrition | 3 |
| NFS 312 Nutrition in the Life Cycle | 2 |
| NFS 311 Nutritional Biochemistry | 3 |
| NFS 315 Nutritional Biochemistry Laboratory | 1 |
| NFS 510 Advanced Nutrition | 3 |

**Minor Electives**

| | |
|---|---|
| A minimum of three hours to be chosen from: | |
| NFS 511 Therapeutic Nutrition | 3 |
| NFS 516 Maternal and Child Nutrition | 3 |
| NFS 503 Community Nutrition | 3 |
| NFS 408G Seminar in Food and Nutrition* | 1 |

*May be repeated to a maximum of 3 hours.

# LAW

*David E. Shipley, J.D., is Dean of the College of Law; Carolyn M. Kennedy, J.D., Todd B. Eberle, J.D., Eugene R. Gaetke, J.D., Drusilla Vansant Bakert, J.D., and Deborah A. Wells are Associate Deans.*

Since its establishment in 1908, the College of Law has provided programs of legal instruction, research, and service to the state and to the bar. The College of Law program is designed so that its graduates can practice their profession on a local, regional, or national level. The college is accredited by all agencies which establish standards for law schools, including the Association of American Law Schools, the American Bar Association and the bar admission authorities in all states.

The instructional program consists of a three-year general law curriculum designed to be completed in six consecutive 16-week semesters or in five semesters and two summer sessions. The program is arranged to assist each student in acquiring the skills required for the solution of modern legal problems; to make certain that he or she has an appreciation for and understanding of the legal, social, and political institutions on which the administration of justice rests; and to prepare him or her for the policy and ethical decisions which must be made in practicing law.

### The Faculty

The program of the college is conducted by a full-time faculty and staff composed of 24 professors and 25 library and support personnel. They are assisted by some part-time professors.

### The Library

The college maintains a carefully selected law library collection of over 350,000 volumes, one of the larger law libraries in the South. It is housed in the Law Building and includes a comprehensive collection of American case and statutory materials. It contains more than 40,000 treatises and textbooks, all major legal reference works, and over 3,400 annual legal publications. The law library is growing at a rate of about 10,000 volumes per year.

### The Law Building

The College of Law occupies a handsome building of contemporary design located on the central campus. The building was planned to provide all of the special physical facilities required for a modern legal education. Facilities include a fifty-terminal computer lab; a model courtroom-auditorium; the Law Library; eight classrooms; faculty and staff offices; offices for the Mineral Law Center, the *Kentucky Law Journal*, the Moot Court Board, the Student Bar Association and other law student organizations; and offices for visiting scholars who come to the College of Law for research and study.

### Other Facilities and Information

Since 1912 the college has published the *Kentucky Law Journal*, a quarterly periodical and the tenth oldest American law review. This journal is published by a student staff, and election to the staff is based on high academic achievement and proven ability to write and conduct research. Articles, notes, and comments written by legal scholars, attorneys, and students are published. *The Kentucky Law Journal* is subscribed to by members of the bar as well as all leading domestic and foreign libraries.

The Mineral Law Center was established in 1983 to serve as an objective and nonpartisan research center for energy and environmental-related legal issues and to further the teaching and service missions of the college. Since its founding, the center has expanded the college's curricular offerings in environmental, mineral and coal law, secured research grants, and conducted seminars and continuing legal education programs in all areas of mineral and energy law. The center currently publishes the *Journal of Natural Resources and Environmental Law.*

Practical training in trial and appellate advocacy is provided in litigation skills and clinical courses, and in co-curricular moot court and trial and appellate advocacy programs. Teams representing the college compete annually in the National Moot Court Competition and in various trial and appellate advocacy competitions.

Instruction in legal research and writing is available to all students, not only in required courses designed for this purpose, but also in a program of seminars, drafting projects and opportunities for independent study. The college operates an externship program to provide students with a variety of clinical learning experiences.

## REQUIREMENTS FOR ADMISSION

In addition to the general requirements for admission to the University, an applicant for admission to the College of Law must meet the following requirements:

1. The applicant must have received a bachelor's degree from an accredited institution.

**APPLICATION DEADLINES FOR COLLEGE OF LAW**

**First-Year Students**

Law Application:

**Fall** March 1

LSDAS Report:

**Fall** March 31

**Transfer Students**

Law Application, transcript(s), credentials:

| **Fall** | **Spring** | **Summer** |
|---|---|---|
| June 1 | Dec. 1 | May 15 |

2. The applicant, unless blind, must have taken the Law School Admission Test.

3. The applicant must have registered with the Law School Data Assembly Service and furnished the necessary transcripts which such registration requires.

### Admissions Committee Consideration

The College of Law Admissions Committee considers and makes recommendations to the Dean of the College of Law on an applicant's undergraduate grade record, the Law School Admission Test Score, writing ability, and other factors indicative of the applicant's aptitude for law study. The Committee examines with particular care the grade average for the most recent semesters of undergraduate study, recommendations of faculty, the nature and difficulty of course work attempted in prelaw study, undergraduate extracurricular activities, and work experience. The Committee also considers postbaccalaureate experiences where such experiences, in the Committee's determination, indicate a development of aptitude for the study of law. The Committee will review the file of an applicant to determine whether personal, academic, professional, or intellectual circumstances tend to discount low academic or LSAT scores and give evidence of both the capability and motivation to do successful law school work. The Committee may also consider factors which bear on the provision of adequate legal services to all segments of Kentucky.

In its decision making, the Committee works with written materials in the applicant's file. There is no interview and applicants are urged to provide in writing whatever they want the Committee to consider. The Committee welcomes letters of recommendation which speak to ability, and the Committee will consider any other material the applicant thinks important enough to include.

### Admission of Transfer Students

At a minimum, applicants for transfer from a law school should present a 2.7 average on at least 25 hours of law school work at a school accredited by the American Bar Association or the Association of American Law Schools. The Admissions Committee will consider the applicant's law school record as well as all factors the Committee considers in an application for the entering class.

### Procedure for Application

Application for admission is initiated by submitting the following to the Office of the Dean, College of Law: a completed UK law application form, which may be obtained from that office, and a $25 check made payable to the University of Kentucky College of Law.

The Law School Admissions Test (LSAT), administered by the Law School Admission Services (LSAS), is given four times each year at testing centers throughout the country according to a schedule of dates and places published by the LSAS.

In addition to administering the LSAT, LSAS provides a transcript analysis and report for applicants, known as the Law School Data Assembly Service (LSDAS). All applicants are required to register directly with LSAS for this service, which is done at the time one applies to take the LSAT. Transcripts of prelaw work should be sent to LSAS rather than the University.

The LSAT and the LSDAS registration forms are available from LSAS and from the Dean's Office in the College of Law.

### Submission Dates and Deadlines

Because the Admissions Committee considers applications as they are completed, all students are urged to apply as early as possible. March 1 of the year in which an applicant expects to enter law school for the fall semester is the **deadline** for receipt of the application form. March 31 is the **deadline** for receipt of all supplementary materials, including LSAT scores and the LSDAS report. Applicants are urged to take the LSAT in October or December. The LSAT given in late February or early March is the last examination which will be accepted by the Admissions Committee. Applicants are urged to send transcripts to LSDAS no later than January 1. If transcripts are not on file with LSDAS by February 1, there is a substantial possibility that an LSDAS report will not arrive at the Office of Admissions before the March 31 deadline for receipt for materials.

#### College of Law Withdrawal Policy

All students enrolled in the College of Law are expected to complete their degree requirements without interruption other than for regularly scheduled vacation periods. It is expected that students will complete all courses or seminars in which they are enrolled. Rules specific to withdrawal from the College of Law exist. Contact the College of Law for complete information.

## PRELEGAL STUDY

While a broad, liberal arts education is generally considered to be an excellent preparation for law school, there is no fixed, comprehensive prelaw curriculum prescribed by this or any other American law school.

This fact is very important, and its implications should not be misunderstood. American legal education is not a graduate program of advanced work in a specialized course of study beginning in college; it is not a technical or scientific training that builds upon a specific preparation in basic techniques and knowledge acquired in undergraduate school. Legal education is a professional education which requires that each student develop three fundamental capacities (described below) in the prelegal experience. These accomplishments may be obtained in a variety of learning ways and academic disciplines.

First, because the basic working tools of lawyers are written and spoken words, the beginning law student must have thorough preparation in the use of the language. The importance of this requirement cannot be overstated. A fundamental knowledge of grammar and syntax, a good vocabulary, an ability to read rapidly with insight and understanding, and a facility for expressing ideas with clarity and order are all essential to success in the study and practice of law. Any prelaw student who is deficient in these abilities should immediately take additional courses in English literature and composition, seek specialized remedial assistance, and exert all efforts towards language mastery.

Second, because the primary working arenas of lawyers are social, economic, and political communities, the beginning law student must obtain a comprehensive, exploratory undergraduate experience. The law student should have a good knowledge of history (especially English and American traditions), of governmental and political processes, of social and cultural patterns and the interactions that create them, and of the ethical and spiritual credos by which men and women live.

Third, because the fundamental techniques of legally trained persons are careful ordering of facts and events, conceptual analysis and synthesis, and effective advocacy, the prelaw student should pursue a degree program in which he or she will learn to think clearly, will form sound study habits, and will have the opportunity to master the methodology and knowledge of a particular field under the guidance of experienced instructors. Generally, any undergraduate program can satisfy this requirement and help meet the other two needs outlined above. Prelaw students with definite career objectives in mind may wish to prepare for those objectives by majoring in appropriate subjects, for example: business or economics, government or political science, English literature, engineering, or the natural sciences.

Experience indicates that the poorest preparation for legal study lies in inadequate development of language skills, lack of historical and social awareness and appreciation, and failure to achieve the mastery of any academic discipline that overcomes the shallowness of vague generalization. Therefore, the prescription from this law school to the prelaw student is that he or she should invest in the broadest, deepest undergraduate education open to him or her rather than in some predetermined curriculum.

For additional information, students should obtain the current *Official Guide to U.S. Law Schools*, published and prepared by the Law School Admission Council and the Association of American Law Schools. This yearly publication contains material on the law and lawyers, prelaw preparation, applying to law schools, and the study of law, together with information on most American law schools. Students may order this when they register for the LSAT and LSDAS.

## THE DEGREE OF JURIS DOCTOR

Students admitted to the College of Law are eligible for the degree of Juris Doctor (J.D.) upon completion of a minimum of three academic years (six full-time semesters or equivalent) of residence and 90 semester hours of courses in the College of Law with a grade-point average of at least 2.0.

All courses in the first year of law study are required as is a course in professional responsibility and an upper division writing course.

Because the study of law at the University of Kentucky is a full-time pursuit, all law students are expected to carry a full academic program (15 semester hours) and to devote their full time to the study of law.

For the *College of Law Bulletin*, interested students may call (606) 257-7938 or write to the Dean's Office, College of Law, University of Kentucky, Lexington, KY 40506-0048. For specific information about the courses and policies of the College of Law, students should refer to its *Bulletin*, or contact the Associate Dean for Academic Affairs at the College of Law, (606) 257-1678.

# MEDICINE

*Emery A. Wilson, M.D., is Dean of the College of Medicine.*

The College of Medicine offers a four-year curriculum leading to a degree of Doctor of Medicine (M.D.) and training for postdoctoral and research fellows. The University of Kentucky Hospital offers accredited postdoctoral training for interns and residents.

A curriculum in medicine has been part of the University of Kentucky since 1960. The College of Medicine is responsible for providing its students with training in related basic sciences and with clinical experience under supervision in the University of Kentucky Hospital and other affiliated facilities.

As part of the Medical Center—which also includes the University of Kentucky Hospital and the Colleges of Dentistry, Nursing, Pharmacy, and Allied Health Professions—the College of Medicine strives for programs of the highest possible quality. This means selecting the best possible student body, creating an environment which fosters learning, investigation, and clinical excellence, and acquiring and keeping talented faculty and administrative staffs.

## ACADEMIC PREPARATION FOR THE STUDY OF MEDICINE

Medical science and practice involve complex relationships between physical, biological, psychological, cultural, and environmental aspects of human behavior. In the preparation for medical school, fundamental undergraduate college training in biology, chemistry, physics and English is essential. Minimal requirements are satisfied with the equivalent of two semesters of studies in physics; two semesters in the biological sciences; four semesters in chemistry, including organic chemistry; and at least one year of English with emphasis on communication skills such as reading, writing, and speaking.

Courses in each of the science areas must include laboratory work. Students are encouraged to follow special interests which they may have in philosophy, psychology, literature, social sciences, or the fine arts.

Students are urged to demonstrate a capacity for advanced work through concentrated study of at least one subject in a major area by completing courses beyond the introductory level.

## REQUIREMENTS FOR ADMISSION

Applicants for admission to the College of Medicine, in addition to meeting general University requirements, must meet the prerequisite requirements of the College of Medicine and be accepted by the Medical College Admissions Committee. Applicants normally will be required to have taken the Medical College Admission Test (MCAT) and to have completed a baccalaureate degree program at an accredited college or university.

## SELECTION CRITERIA

In admitting students to the College of Medicine, the University endeavors to select students who show promise of becoming excellent future physicians. Applicants are judged on the basis of their total qualifications and in comparison with other applicants.

As a state-supported school, the College of Medicine gives preference to qualified residents of Kentucky. Well-qualified nonresident candidates may apply, since some nonresidents are admitted.

Selection from among applicants who meet the general premedical educational requirements of the College of Medicine is based on a number of criteria. A high level of academic performance at the undergraduate level is extremely important. It is recognized, however, that a meaningful evaluation of student performance must consider many factors in addition to grades. For example, exposure to the health care profession is usually considered an asset.

Scholastic aptitude as measured by the Medical College Admissions Test also is considered.

Since the practice of medicine involves the physician in continual relationships with people—with patients, and with other members of the health care team—applicants are also judged according to premedical evaluations, the degree of their participation in campus and community activities and organizations, and the personal characteristics that they demonstrate. Friendliness, warmth, compassion, integrity, and commitment are all essential traits of the physician.

Often the physician's ability to communicate effectively will determine the degree of success in the diagnosis and management of a patient's health problem and in other professional activities. Thus, consideration is given to the communication skills demonstrated by each applicant. Communication is a two-way process and involves the ability to listen perceptively, as well as to speak and write clearly.

Because the practice of medicine and the life of the medical student require a great investment of effort and demand both time and energy, it is essential that a prospective medical student be in good health and that the motivation to study medicine be sufficiently strong to sustain him or her in the face of difficulties.

## STUDENT PROGRESS

The Student Progress and Promotion Committee is charged with monitoring student progress through the curriculum. The committee regularly reviews each student's performance and makes recommendations on such actions as graduation, promotion, remediation, dismissal, and leaves of absence. Final authority on all matters of student progress and promotion is vested in the Dean of the College of Medicine.

Students are responsible for conforming to all rules and regulations specified by the *Behavioral Standards in Patient Care, Health Science Student Professional Behavior Code*, the College of Medicine Honor Code, the "Technical Standards Related to Applicant Admission and Student Performance" detailed in the *College of Medicine Bulletin*, the academic standards established in the Student Promotion rules, and the Code of Student Rights and Responsibilities for all University of Kentucky students.

## COURSE DESCRIPTIONS

Course listings for the College of Medicine may be found under the college according to departmental and area headings.

For specific information about programs in the College of Medicine, students should refer to *The Graduate School Bulletin* or the *College of Medicine Bulletin*.

## COMBINED MEDICAL AND GRADUATE STUDIES

A medical student who wishes to work toward a combined medical and graduate degree (master's or doctoral) may do so by enrolling both as a graduate student and as a medical student. Details of the combined degrees are available from basic science department chairpersons, the Associate Dean for Research and Basic Sciences, or the Office of Education, College of Medicine.

# NURSING

*Carolyn A. Williams, Ph.D., is Dean of the College of Nursing; Margaret Grier, Ph.D., Associate Dean for Graduate Studies and Research; Kay Robinson, M.S.N., Assistant Dean for Undergraduate Studies.*

### Accreditation

The College of Nursing has had continuous accreditation by the National League for Nursing since 1967. The baccalaureate degree curriculum offered by the College of Nursing is accredited by the National League for Nursing and approved by the Kentucky Board of Nursing.

### Undergraduate Program in Nursing

The University of Kentucky grants the following degree in the College of Nursing:

- Bachelor of Science in Nursing

## ADMISSION REQUIREMENTS

The College of Nursing enrollment is composed of four-year students, associate degree nursing graduates, and diploma nursing school graduates. Admission to the University does not guarantee admission to the College of Nursing. Preference is given to Kentucky residents.

Applicants must be in a state of good health enabling them to carry out the functions of the professional nurse. Routinely, each student will be required to obtain a rubella and rubeola titers, hepatitis B immunizations, and have an annual tuberculin test or chest x-ray.

Progression to upper-division is regulated so that the total number of full-time equivalents at the beginning of the junior year does not exceed 120.

Admissions criteria for four types of students are presented below:

1. **A freshman student** will be eligible for admission to the College of Nursing (CON) if the student has a high school grade-point average (GPA) of 2.5 or above on a scale of 4.0, and also meets the criteria for automatic admission to the University of Kentucky, and completes a written statement describing reasons for pursuing nursing as a career. (Specific criteria available in Student Services, College of Nursing.)

2. **A transfer student who is not a registered nurse** will be eligible for admission to the CON after meeting the following requirements:

a. Applicants with less than 24 credit hours must meet the criteria for entering freshmen and have at least a GPA of 2.35 on all college work attempted as computed by the Office of Admissions.

b. Applicants with 24 credit hours or more must have at least a GPA of 2.35 on all college work attempted as computed by the Office of Admissions.

c. All transfer applicants complete a written statement describing reasons for pursuing nursing as a career. (Specific criteria available in Student Services, College of Nursing.)

3. **A student who is a eligible to take the examination for licensure** (NCLEX-RN) and who wishes to be considered for admission to **upper-division** courses in the nursing program must meet the following requirements:

a. The applicant must be a graduate of or enrolled in the final semester of an associate degree nursing program in a college accredited by one of the six regional academic accrediting associations,

OR

The applicant must be a graduate of or enrolled in the final semester of a diploma program and have earned a minimum of 60 college credits which include:

English—6 semester credits
Natural Sciences—6 semester credits
Social Sciences—6 semester credits
Humanities—6 semester credits
Nursing*—28 semester credits

b. For automatic acceptance, the applicant in this category must have a cumulative GPA of 2.5 or above on a scale of 4.0 in all college course work attempted as computed by the Office of Admissions.

Applicants with a GPA between 2.35 and 2.49 will be considered for admission of an individual basis. Such actions are recommended by the Undergraduate Student Admission and Progression Committee and approved by the Dean of the College of Nursing.

c. An applicant admitted in this category must hold a valid Kentucky license to practice as a registered nurse prior to beginning the first clinical course.

**4. A student who is a registered nurse** and who wishes to be considered for admission to **upper-division** courses in the nursing program must meet the following requirements:

a. The applicant must be a registered nurse licensed to practice in Kentucky.

b. The applicant with an associate degree in nursing from a college accredited by one of the six regional academic accrediting associations will be automatically accepted if the applicant has at least a GPA of 2.5 on a scale of 4.0 in all course work attempted as computed by the Office of Admissions.

Applicants with a GPA between 2.35 and 2.49 will be considered for admission of an individual basis. Such actions are recommended by the Undergraduate Student Admission and Progression Committee and approved by the Dean of the College of Nursing.

c. The registered nurse who is a graduate of a diploma program will be automatically accepted for admission after earning a minimum of 60 college credits which include:

English—6 semester credits
Natural Sciences—6 semester credits
Social Sciences—6 semester credits
Humanities—6 semester credits
Nursing*—28 semester credits

The applicant must have at least a GPA of 2.5 on a scale of 4.0 in all college course work attempted as computed by the Office of Admissions, and must have satisfactorily completed the ACT-PEP tests which establish the nursing credits.

*Nursing credits may be earned from regionally accredited colleges by taking the courses or by taking the ACT-PEP tests. It is strongly recommended that applicants contact the Office of Student Services in the College of Nursing regarding the approved nursing ACT-PEP credits. All nursing courses taken in associate degree or diploma programs are considered lower-division courses and are not equivalent to upper-division courses in this program.

### APPLICATION DEADLINES FOR COLLEGE OF NURSING

**Freshmen** (4-year program)
ACT scores, application:
**Fall** March 1*

**Transfer Students** (4-year program)
Application, transcript(s) ACT, if required:
**Fall** March 1*

**RNs only**
Application, credentials:
**Fall** March 1*

*Applications received after the published deadline will be considered on a space-available basis only.

### Application for Admission

All applications and transcripts for admission must be submitted to the Office of Admissions no later than March 1. Applicants are considered for fall admission only. Those accepted for admission must notify the college within 30 days, in writing, of their intent to enroll. Late applicants will be considered for admission on a space-available basis.

### Part-Time Study

Students who are working toward the completion of the B.S.N. degree on a part-time basis must plan a course of study with the appropriate College of Nursing personnel or committee and may not alter that plan without prior approval from the College of Nursing.

Candidates for the degree who do not complete all requirements within a seven-year period (five years for R.N. students) after admission will have their records reevaluated and may be required to repeat or take selected courses.

### Financial Aid

The college has a few scholarships designated for Nursing students. Inquiries should be directed to the Office of Student Services, College of Nursing.

Students may also wish to pursue funds available through hospitals and other agencies that offer financial assistance in return for a work commitment.

### Academic Advising

Students who are admitted to the College of Nursing are assigned to an adviser within the college. Curriculum plans are determined in the first semester of enrollment in the college and updated each semester. Questions regarding progression through the program may be directed to the Office of Student Services, College of Nursing.

## DEGREE REQUIREMENTS

## BACHELOR OF SCIENCE IN NURSING

To obtain a Bachelor of Science in Nursing, students must satisfy the University requirements for graduation, including University Studies, and obtain a 2.0 grade-point average in nursing in the courses listed below. A grade of C or better must be attained in all nursing courses in order to proceed to the next clinical course or to graduate. A minimum of 131 credit hours is required for graduation.

**Sample Curriculum**
**Baccalaureate Program**
**(Four-year Students)**

**Freshman Year**

| | Hours |
|---|---|
| **First Semester** | |
| BIO 208 Principles of Microbiology | 3 |
| ENG 101 Writing I | 3 |
| CHE 104 Introductory General Chemistry | 3 |
| PSY 100 Introduction to Psychology | 4 |
| NUR 800 Orientation to Professional Nursing | 1 |
| **Second Semester** | |
| ENG 102 Writing II | 3 |
| CHE 106 Introduction to Inorganic, Organic and Biochemistry with laboratory | 4 |
| SOC 101 Introductory Sociology | 3 |
| PSY 223 Developmental Psychology | 3 |
| University Studies | 3 |

**Sophomore Year**

| | |
|---|---|
| **First Semester** | |
| ANA 206 Basic Human Anatomy | 3 |
| COM 252 Introduction to Interpersonal Communication | 3 |
| NFS 212 Introductory Nutrition | 3 |
| NUR 821 Professional Nursing I | 5 |
| University Studies | 3 |
| **Second Semester** | |
| NUR 825 Basic Physiology for the Health Sciences | 4 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |
| NUR 823 Professional Nursing II | 6 |
| STA 200 Statistics: A Force in Human Judgment **or** | 3 |
| STA 291 Statistical Method **or** | 3 |
| PSY 216 Applications of Statistics in Psychology | 4 |

**Junior Year**

| | |
|---|---|
| **First Semester** | |
| NUR 827 Implications of Drug Therapy for Nurses | 3 |
| NUR 831 Biological Concepts: Threats to Human Health | 2 |
| NUR 832 Nursing Care of Adults | 5 |
| NUR 837 Mental Health Concepts | 2 |
| NUR 840 Psychiatric-Mental Health Nursing | 5 |
| **Second Semester** | |
| NUR 833 Epidemiologic Concepts for Health Care | 2 |
| NUR 834 Nursing Care of Children | 5 |
| NUR 835 Family Health Concepts | 2 |
| NUR 836 Maternal-Neonatal Nursing | 5 |
| NUR 839 Nursing Research | 3 |

**Senior Year**

| | |
|---|---|
| **First Semester** | |
| NUR 841 Issues in Nursing | 2 |
| NUR 842 Community Health Nursing | 6 |
| University Studies | 6 |
| Elective | 3 |
| **Second Semester** | |
| NUR 844 Nursing Care of Adults with Complex Health Problems | 5 |
| NUR 846 Leadership/Management in Nursing | 5 |
| MC 530 Case Histories in Health Care Ethics (or equivalent) | 1 |
| University Studies | 6 |

**Sample Curriculum**
**Baccalaureate Program**
**(Registered Nurses)**

**Junior Year**

| | Hours |
|---|---|
| **First Semester** | |
| NUR 824 Clinical Decision Making in Professional Nursing I | 6 |
| NUR 831 Biological Concepts: Threats to Human Health | 2 |
| NUR 833 Epidemiological Concepts for Health Care | 2 |
| NUR 827 Implications of Drug Therapy for Nurses | 3 |
| STA 200 Statistics: A Force in Human Judgment | 3 |
| **Second Semester** | |
| NUR 826 Clinical Decision Making in Professional Nursing II | 6 |
| NUR 835 Family Health Concepts | 2 |
| NUR 837 Mental Health Concepts | 2 |
| NUR 839 Nursing Research | 3 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |

**Senior Year**

| | |
|---|---|
| **First Semester** | |
| NUR 842 Community Health Nursing | 6 |
| NUR 841 Issues in Nursing | 2 |
| University Studies | 6 |
| Elective | 3 |
| **Second Semester** | |
| NUR 846 Leadership/Management in Nursing | 5 |
| MC 530 Case Histories in Health Care Ethics (or equivalent) | 1 |
| University Studies | 9 |

### Curriculum Policies

Students are expected to be familiar with the requirements for the degree of Bachelor of Science in Nursing and to confer with advisers in the College of Nursing when selecting courses.

Since the health needs of the nation are constantly changing, an effective curriculum requires continuous review and evaluation, which may necessitate revision of courses and requirements. Thus, there can be no guarantee that course content will be identical in each subsequent academic year. Furthermore, to continue to meet the changing emphasis in nursing education, some courses will require educational experiences for students in community facilities outside of Lexington.

### Outcome Objectives

1. Exemplifies a personal philosophy of nursing that is consistent with professional standards.

2. Applies the nursing process as a method of providing professional nursing care to prevent illness; promote, maintain, restore client health; and/or assist clients to a peaceful death.

3. Practices critical thinking skills to make independent and collaborative decisions.

4. Incorporates research findings into professional nursing practice.

5. Provides professional nursing care to clients with actual and potential health problems in diverse settings.

6. Collaborates in planning, delivering, and evaluating nursing services in a changing society.

7. Demonstrates responsibility and accountability for professional behavior.

8. Employs theories of leadership and management in providing professional nursing care.

9. Demonstrates leadership in addressing professional nursing and health issues.

10. Provides professional nursing care based on an evaluation of internal and external forces affecting client systems.

## B.S.N. - M.S.N. in NURSING

Prospective students for the Master of Science in Nursing are eligible to enroll in a combined B.S.N.-M.S.N. course of study. Students who successfully complete the requirements are awarded both Bachelor of Science in Nursing and the Master of Science in Nursing degrees.

### ADMISSION REQUIREMENTS

A student seeking admission to the B.S.N. must meet the following criteria/ portion of the option:

a. have a cumulative GPA of 2.5 on a 4.0 grading scale,
b. have Kentucky licensure as R.N. before enrolling in first clinical course,
c. earned the Associate Degree in Nursing **or** diploma with 60 college credits meeting specific requirements:

Nursing – 28 semester credits

English – 6 semester credits

Natural Sciences – 10 semester credits

Behavioral Sciences–6 semester credits

Electives – 10 semester credits

d. one year nursing experience,
e. three letters of reference, one from most recent employer,
f. interview,
g. at least 50th percentile on each of four NLN Mobility Profile exams.

Admission to the B.S.N. portion of this degree option does not necessarily constitute admission to the M.S.N. portion of the degree program. The following criteria must be met:

### Progression to Graduate Courses

Students wishing to progress to the graduate courses must pay Graduate School fees and meet the following requirements:

a. 2.5 GPA on a 4.0 grading scale,
b. satisfactory GRE scores,
c. satisfactory progress in RN/BSN sequence,
d. licensure in Kentucky and clinical experience in area of interest,
e. evidence of physical and health assessment skills,
f. admission to The Graduate School.

### B.S.N. - M.S.N. Degree Requirements

In addition to completing the University Studies requirements, the student must complete the following:

**Sample Curriculum**
**B.S.N. - M.S.N. Program**
**(Registered Nurses)**

**Junior Year**

| | Hours |
|---|---|
| NLN Mobility | 9 |

**First Semester**

| | |
|---|---|
| NUR 824 Clinical Decision Making in Professional Nursing I | 6 |
| STA 200 Statistics: A Force in Human Judgment | 3 |
| BSC 331 Behavioral Factors in Health and Disease | 3 |

**or** equivalent graduate course

**Second Semester**

| | |
|---|---|
| NUR 826 Clinical Decision Making in Professional Nursing II | 6 |
| NUR 833 Epidemiological Concepts for Health Care | 2 |
| NUR 612 Nursing Research Methods | 3 |

**Senior Year**

**First Semester**

| | |
|---|---|
| NUR 842 Community Health Nursing | 6 |
| MC 530 Case Histories in Health Care Ethics (or equivalent) | 1 |
| Elective | 3 |

**Second Semester**

| | |
|---|---|
| NUR 846 Leadership/Management in Nursing | 5 |
| NUR 600 Advanced Nursing Practice: Roles and Issues | 3 |

Graduate course work required for the student's program of study is located in the College of Nursing *Graduate Student Handbook.*

### Graduate Study

The College of Nursing offers programs leading to the Master of Science in Nursing and the Doctor of Philosophy in Nursing. Students may obtain information on this program by referring to *The Graduate School Bulletin* or contacting the Director of Student Services, College of Nursing, 315 CON/HSLC, University of Kentucky, Lexington, KY 40536-0232, (606) 323-5108.

# PHARMACY

*Jordan Cohen, Ph.D., is Dean of the College of Pharmacy.*

The College of Pharmacy offers a four year curriculum leading to the Doctor of Pharmacy degree (Pharm.D.), training for postdoctoral and research fellows, a residency program in conjunction with University Hospital and graduate training (Ph.D.) in all areas of the pharmaceutical sciences through The Graduate School. The professional program is fully accredited by the American Council on Pharmaceutical Education and satisfies all educational requirements for licensure.

The major goal of the College of Pharmacy is the education of competent and contemporary pharmacy practitioners who assume responsibility for achieving optimum therapeutic outcomes through the provision of rational drug therapy and who, in cooperation with other health care professionals, can favorably influence both overall health care and the individual patient's quality of life.

## ADMISSION TO THE COLLEGE

The number of students admitted to the Doctor of Pharmacy program depends upon the availability of resources – such as faculty, clinical facilities, and space – for implementation of a quality educational program. Consideration for admission will be based on the applicant's previous academic record; potential for academic achievement; standardized admission test scores; and an assessment of the applicant's communicative skills, integrity, commitment, dedication, motivation, character, maturity and emotional stability. Each applicant must have the physical, mental and emotional ability to learn and accomplish those competencies required of a pharmacy practitioner, and the character and thought processes necessary to make professional judgments that benefit the patient. The minimum grade-point average in required prepharmacy course work is 2.5 but the average grade-point average of admitted students is near 3.4. More information on admission criteria and procedures can be found in the College of Pharmacy *Bulletin.*

Any student may be denied admission or permission to continue enrollment in the College of Pharmacy if, in the opinion of the faculty, the moral or ethical character of the student casts grave doubts upon his or her potential capabilities as a pharmacist. Any type of involvement in the illegal use of drugs, or other illegal or unethical acts relating to the practice of pharmacy are examples of incidents which would provide cause for considering dismissal of a student from the College.

All application materials must be received by February 1 to ensure consideration for admission in the fall of the same year. In addition the Pharmacy College Admission Test (PCAT) score must be received by the College prior to the application deadline. For this reason, all applicants must take the PCAT the fall prior to application, at the latest.

## ACADEMIC PREPARATION

The College of Pharmacy recommends that applicants gain a strong foundation in the social, behavioral, chemical, mathematical and biological sciences. Minimal requirements are satisfied with the equivalent of one semester of mathematics (analytics and calculus), one semester of microbiology or bacteriology with lab, one semester of microeconomics, one semester of animal biology with lab, one semester of human anatomy, two semesters of physics, two semesters of general chemistry with lab, two semesters of organic chemistry with labs, two semesters of English composition and sufficient electives to develop a reasonably well-rounded individual and satisfy specific University Studies Program requirements listed in the College of Pharmacy *Bulletin.* A significant number of applicants to the program have a baccalaureate degree, although a prior degree is not required for admission. Not all courses in the areas above satisfy the requirements for admission. Not only is the course itself consequential, but the level at which it is offered is also of importance. Suggestions and requirements for actual course work may be obtained from the Office of Academic Affairs in the College of Pharmacy. Prospective pharmacy students should contact the College at an early stage in their undergraduate career for guidance.

## STUDENT PROGRESS

The Academic Performance Committee (APC) of the College is charged with monitoring student progress through the curriculum and promoting students from one professional year to the next. Promotion is not automatic and must be earned on the basis of performance. The APC regularly reviews each student's performance and makes recommendations on such actions as promotion, probation, remediation, dismissal, graduation and leaves of absence. Graduation requires successful completion of all course work and approval of the faculty.

Students are responsible for conforming to all rules and regulations specified by the Behavioral Standards in Patient Care, the Health Science Student Professional Behavior Code, the "Technical Standards" related to applicant admission and student performance and the Code of Student Rights and Responsibilities for all University of Kentucky Students.

### APPLICATION DEADLINES FOR COLLEGE OF PHARMACY

**Professional program applicants** (Students who will have completed at least 64 of the required 70 hours for admission at UK, UK community colleges, or other accredited colleges or universities prior to the beginning of fall classes):

Application, transcript(s), other required credentials:

**Fall** Feb. 1

## PART TIME STUDY

Because the curriculum of the College of Pharmacy integrates material from a variety of courses in which the student is enrolled, part time study is extraordinarily difficult and is allowed only in unusual cases. Students allowed such an option must plan a course of study through the Academic Affairs office and with the approval of the Academic Performance Committee. Alteration of such a plan may not occur without prior approval of the APC. The College reserves the right to alter such a plan unilaterally should curricular changes or significant changes in course content occur while a student in part time study is enrolled.

## GENERAL INFORMATION

Questions concerning admission, prepharmacy course work or a visit to the college should be directed to:

**Academic Affairs**
**College of Pharmacy**
**University of Kentucky**
**Lexington, KY 40536-0082**

# SOCIAL WORK

*S. Zafar Hasan, D.S.W., is Dean of the College of Social Work.*

Social work is a profession with a two-fold mission: to help people function as well as they can within their environment and to work for improved social conditions. Social workers are involved in providing services to people in such areas as education, health, mental health, housing, public welfare, counseling, services to the aging, care for the retarded, recreation, corrections and criminal justice, family services, child welfare services, services for the physically and mentally handicapped, vocational rehabilitation and the like. This includes services designed to protect, promote or restore the well-being of people. Both universal services and services for special-needs groups are included.

Social work is not only restorative in nature, responding to human problems after the fact; there is also a strong commitment towards preventive measures. An emphasis upon institutional change within society is predicated upon the principle that society has a responsibility to protect the most vulnerable groups in its midst from falling prey to damage and injury. This expresses itself in the central thrust of the social work profession towards social justice.

The origins of social work are rooted in the ancient human impulse of altruism, the desire to care for one another's needs. Social work became a profession around the beginning of the twentieth century through the efforts of social reformers to meet the needs of the poor, of neglected children and of exploited workers through the better organization of charities and the first "friendly visitors." Social workers led the fight for child labor laws, more humane industrial conditions, voting rights for women and other progressive causes.

Today, professional social work as described in a publication of the National Association of Social Workers, is a "dynamic, growing profession based on knowledge drawn from the social sciences and its own research and practice. It has a code of ethics, standards for practice, and a nationwide system of accredited educational programs designed to merge the impulse to help others with the skill and knowledge needed to provide that help."

### Program Accreditation

Both the Bachelor of Arts in Social Work and the Master of Social Work degree programs are fully accredited by the Council on Social Work Education.

### Undergraduate Program in Social Work

The University of Kentucky grants the following degree in the College of Social Work:

- Bachelor of Arts in Social Work

## THE UNDERGRADUATE PROGRAM OF EDUCATION FOR SOCIAL WORK

The undergraduate program in social work was inaugurated in 1944. Effective July 1, 1969, its administration was transferred from the College of Arts and Sciences to the newly established College of Social Professions, which is now the College of Social Work. Freshmen and transfer students who elect social work as a major should arrange to register in the College of Social Work. Each student will be assigned a member of the faculty of the college as an adviser who will assist in the selection of appropriate courses and ensure that the requirements for the B.A. degree are met. Students who wish special information or a personal interview prior to registration may make an appointment through the Office of the Dean of the College of Social Work.

The principal objective of the undergraduate program is to prepare students for beginning social work practice. Additionally, it prepares students for graduate professional education.

All social work majors have actual experience in the field under faculty direction. These experiences are provided in teaching-learning centers in a variety of agencies located in or adjacent to Lexington.

Courses in social work contribute to the liberal education of all students and help prepare them to be more effective citizens in a complex society in which welfare issues and programs are of increasing importance to everyone.

These courses may serve one or more of the following purposes:

1. To enrich and broaden the knowledge of social problems and social issues.

2. To help develop effective interpersonal relations.

3. To provide basic knowledge of social services to students who are preparing for careers in other helping professions (i.e., special education, rehabilitation, nursing, law, medicine).

### Financial Aid

For financial aid and scholarship information, contact the Office of Associate Dean, 605 Patterson Office Tower, (606) 257-4893.

### Advising

Every student is assigned an academic adviser who assists them in preparing for registration each semester. Undergraduate advisers are assigned by the Director of the Undergraduate Program, 669 Patterson Office Tower, (606) 257-4407. Graduate advisers are assigned by the Records Office, 602 Patterson Office Tower, (606) 257-4952.

## BACHELOR OF ARTS IN SOCIAL WORK

### Degree Requirements

The College of Social Work requires students to earn a minimum of 120 hours for the B.A. in Social Work with a minimum grade-point average of 2.0. Students may take additional hours in accordance with stated University policy.

In addition to fulfilling University Studies requirements, students must complete the program requirements listed below.

### Premajor Requirements

Anthropology—Three hours, normally chosen from the following: ANT 121, ANT 201, ANT 232

Biology—Three hours, BIO 110 or equivalent

Economics—Three hours, normally ECO 101

Political Science—Three hours, normally chosen from the following: PS 101, PS 240, PS 245, PS 255, PS 271, PS 280

Psychology—Three or four hours, normally chosen from the following: PSY 100, PSY 223

Sociology—Three hours, normally chosen from the following: SOC 101, SOC 151, SOC 152, SOC 220

Statistics—Three hours: STA 292, STA 293, and STA 294 **or** STA 200 **or** STA 291

| **Preprofessional Requirements** | **Hours** |
|---|---|
| SW 124 Introduction to Social Services | 3 |
| SW 222 Development of Social Welfare | 3 |
| SW 322 Social Work and Social Welfare (for junior transfers only; substitutes for SW 124, SW 222) | 4 |

| **Professional Requirements** | |
|---|---|
| SW 300 Social Work Practice I | 4 |
| SW 400 Social Work Practice II | 4 |
| SW 420 Perspectives on Human Behavior and the Social Environment | 3 |
| SW 430 Social Welfare Policy: Theory and Implementation | 3 |

SW 444 Educational Practicum I ..... 8
SW 445 Educational Practicum II ..... 8
SW 450 Social Work Research ..... 3
SW 470 Senior Seminar ..... 3

**Social and Behavioral Sciences and Social Work Electives**

Students must complete 15 hours of upper-division courses from any of the following: anthropology, economics, political science, psychology, social work, sociology.

**Electives**

Students must complete at least six hours of upper-division free elective courses.

## COURSES FOR NONMAJORS

Students from other departments are eligible to take certain social work courses offered to enrich the content of their basic major and/or to increase their knowledge and understanding of the society of which they are a part. SW 123, The American Welfare System, and SW 477, Field Experience for Nonmajors, are geared specifically to students from other disciplines, while a number of lower- and upper-division courses are also available to them.

## GRADUATE PROGRAM

The College of Social Work offers a graduate curriculum of two academic years of full-time study, leading to the Master of Social Work degree. Advanced standing in the M.S.W. program may be granted to students with the bachelor's degree in social work. For further information, students should see *The Graduate School Bulletin* or the *College of Social Work Bulletin*.

# UNIVERSITY EXTENSION

*Philip A. Greasley, Ph.D., is Dean of University Extension.*

University Extension is responsible for providing academic programs and services to individuals and organizations throughout Kentucky and beyond. In performing this function, University Extension provides services and assistance to campus academic units as well as direct programming.

University Extension includes Carnahan Conference Center, Evening-Weekend College, Experiential Education, Extended-Campus Programs, the Extension Library Service, the Independent Study Program, the Japanese Saturday School and Japanese Programs, Media Education, the Summer School, and the UK Student Volunteer Center.

Additional information may be obtained from:

**University Extension**
**Frazee Hall**
**University of Kentucky**
**Lexington, KY 40506-0031**
**Toll-Free 1-800-432-0963 in Kentucky**
**1-800-325-2766 outside Kentucky**

Telephone numbers for each program and division of University Extension are listed in the sections that follow.

## CARNAHAN CONFERENCE CENTER

Carnahan House, the University's conference center, is located in Kentucky's picturesque bluegrass horse farm country. Its pristine rural setting provides a congenial, relaxed atmosphere in which individuals and groups can meet and learn together, distanced from normal activities and concerns, yet close to the University and downtown Lexington. Tradition and elegance combine in a spacious facility with meeting rooms accommodating up to 100 people.

For additional information, call (606) 254-1060.

## EVENING-WEEKEND COLLEGE

The Evening-Weekend College provides an opportunity for continuing education in Central Kentucky. This program includes credit classes and degree programs in several academic areas.

Students may enroll in the Evening-Weekend College as nondegree students or as degree candidates. Nondegree students may apply for admission as degree candidates at a later date, at which time they must meet admission requirements as set forth in this Bulletin. Credit earned while in nondegree student status may be counted toward a University degree provided the student would have been eligible for admission to the University and for the course at the time of enrollment. Specific University policy concerning nondegree student status is outlined in the *Undergraduate Admission* section of this Bulletin.

Students who have been suspended by the University may not enroll for credit in the Evening-Weekend College until they have been reinstated.

Students from other institutions desiring to enroll for credit must meet all University requirements for admission. Students who plan to transfer credit to another institution must be eligible in all respects for admission to the University of Kentucky. It is the responsibility of the student to ascertain whether the work will be accepted by another institution.

For additional information on courses and programs, contact the Evening-Weekend College Office at (606) 257-3159.

### Withdrawal and Refund Policy for Evening-Weekend and Extended-Campus Students

Students enrolled in an Evening-Weekend (sections 401-450) or Extended-Campus (sections 201-250) course (not including regular campus course offerings, see Bulletin or Term Schedule) who officially withdraw from the University or from the course are entitled to a full refund of all fees paid if they withdraw before the end of the second week of the course. Students who officially withdraw after the second week of class but before the official midterm date are entitled to a refund of one-half the fees paid. No fees will be refunded to students who withdraw after the midterm date. Requests for refunds should be made at the appropriate office in University Extension.

The request to withdraw must be made in person or in writing. If a request for withdrawal is made in writing, the date on which the letter or card is postmarked will be used as the official withdrawal date.

## EXPERIENTIAL EDUCATION

Students may become involved in elective internships, cooperative education, and volunteer positions through the Office for Experiential Education. Students earn academic credit by working in businesses, agencies, or other settings pertinent to their academic majors or career goals. Full-time or part-time internships and co-op positions may be arranged for students in Lexington or other areas.

Students choose to earn credit through experiential education for many reasons. Some wish to explore career alternatives and gain valuable work experience. Others participate in order to test theories they have learned in the classroom. Many students desire to gain self-confidence and develop communication and problem-solving skills through internship experiences.

The UK Student Volunteer Center, located in 206B Mathews Building, works to provide student learning experiences associated with student volunteerism in service to the community by organizing volunteer efforts and by matching prospective student volunteers with community service agencies needing volunteers.

For more information, call (606) 257-8785.

The Office for Experiential Education also operates a Shadowing program. This noncredit program gives students the opportunity to follow a working professional for a day. Information gained from this experience can be most helpful to students making career decisions.

Additional information may be obtained by attending an orientation session with:

**The Office for Experiential Education**
**206 Mathews Building**
**University of Kentucky**
**Lexington, KY 40506-0047**
**Telephone (606) 257-3632**

## EXTENDED-CAMPUS PROGRAMS

Extended-Campus Programs, in cooperation with academic departments and colleges, is committed to extending educational opportunities beyond the Lexington campus. Various undergraduate and graduate courses and programs are available at selected sites across the state as well as regionally, nationally, and internationally. Programming includes nontraditional formats such as videotaped courses, distribution by satellite "uplink," compressed video, and involvement in educational consortia.

Courses and programs address the needs of learners who want to continue their personal and professional development yet find it impractical or inconvenient

to come to UK's main campus. Extended-Campus Programs' learners include traditional students, returning adult students, employees of business and industry, government agency personnel, teachers and administrators, students pursuing international education, and community college faculty.

Taught by UK faculty, the courses provide students with an opportunity to earn University credit in a convenient environment.

For more information, call (606) 257-3377.

## EXTENSION LIBRARY SERVICE

The University of Kentucky Extension Library Service is available to assist Extended-Campus graduate and professional students and faculty teaching Extended-Campus courses with library research questions. The Extension Library Service can assist Extended-Campus students in obtaining library cards, books, and journal articles and by providing subject-based literature search bibliographies.

For more information, contact the Extension Library Service at (606) 257-6312.

## INDEPENDENT STUDY PROGRAM

The Independent Study Program offers a variety of regular University courses by correspondence for University credit. Also offered are 40 courses at the high school level in the areas of English, social studies, mathematics, business education, health, foreign languages, and sciences.

Students must meet enrollment requirements for a course, including any prerequisites. An official transcript is not required.

Students pursuing University degrees should be aware of the following University regulations concerning independent study (correspondence) courses:

1. No more than 30 credit hours of the total required for an undergraduate degree may be earned through independent study courses. No more than one-third of the requirements for a major may be earned through independent study courses.
2. Students may enroll for an independent study course any time during the calendar year and have one year from the date of enrollment in which to finish the course. Students may obtain a four-month extension.
3. Students in residence at the University must have permission from their dean to register for an independent study course.
4. Hours earned by independent study will be credited in the term in which the course is completed.
5. Graduate or professional credit is not granted for work taken by independent study. Graduate students, however, may do independent study work, and the credit earned can be applied toward undergraduate major and/or minor fields for certification purposes.

University courses offered by independent study are listed below by number only. Descriptions may be found in the *Course Descriptions* section of this Bulletin.

**Accounting:** ACC 201, 202
**Agriculture:** GEN 101, 104
**Animal Science:** ASC 106, 380
**Astronomy:** AST 191, 192
**Biology:** BIO 103, 104, 110, 208, 404, 508
**Classical Languages and Literatures:** CLA 101, 102, 131, 151
**Economics:** ECO 101, 201, 202, 485G
**English:** ENG 101, 102, 201, 203, 204, 221, 222, 251, 252, 261, 262, 270, 425G, 452G
**Family Studies:** FAM 251, 252
**Finance:** FIN 300
**Forestry:** FOR 101
**French Language and Literature:** FR 101, 102, 201, 202
**Geography:** GEO 130, 152, 172, 251, 322
**Germanic Languages and Literatures:** GER 111, 112, 201, 202
**History:** HIS 104, 105, 108, 109, 203, 464, 467, 578
**Human Environmental Sciences:** HES 100, DMT 120, 237,
**Journalism:** JAT 201
**Management:** MGT 320
**Marketing:** MKT 300
**Mathematics:** MA 108R, 109, 112, 113, 114, 123, 201
**Music:** MUS 100
**Nutrition and Food Science:** NFS 101
**Philosophy:** PHI 100, 120, 130
**Plant and Soil Science:** PLS 366, 386
**Political Science:** PS 101, 235, 452G, 470G
**Psychology:** PSY 100, 223, 502, 503
**Religious Studies:** RS 130
**Social Work:** SW 222
**Sociology:** SOC 101, 409, 436, 437, 528, 542
**Spanish and Italian Languages and Literatures:** SPI 141, 142, 241, 242
**Statistics:** STA 292, 293, 294

The Independent Study Catalog lists complete course descriptions and enrollment costs. Contact the Independent Study Program Office at (606) 257-4002.

## THE JAPANESE SATURDAY SCHOOL

The University of Kentucky is charged by the Commonwealth of Kentucky with management of the Central Kentucky Japanese Saturday School. University Extension manages the Saturday School, which provides Japanese-related instruction, offered in Japanese, to interested students from first through twelfth grade. The Saturday School is located in offices on the Tates Creek High School campus in southern Fayette County.

For information, please call (606) 257-4048.

## JAPANESE PROGRAMS

In conjunction with the Japanese Saturday School, University Extension offers self-supporting opportunities to enhance interaction with Japan and between the Japanese and American communities. As part of this effort, Japanese Programs provides translation services, on-site training programs, noncredit Japanese language, culture, and test preparation classes as well as cultural and recreational experiences.

For information on Japanese Programs, call (606) 257-4048.

## MEDIA EDUCATION

Media Education cooperates with other divisions of University Extension as well as with academic departments and colleges, Media Design and Production, and Instructional Telecommunications to promote use of television courses, videoconferencing, and audioconferencing.

Television courses are scheduled through the Evening-Weekend College and Extended-Campus Programs. These courses combine television programs, related textbooks, study guides and examinations, and six to eight class meetings with University instructors.

Media Education also cooperates with the continuing education units of the colleges to explore the use of television to meet the continuing education needs of professionals in Kentucky. National audioconferences and videoconferences are delivered to campus and corporate locations.

For additional information, contact the Media Education Office at (606) 257-3330.

## SUMMER SCHOOL

The University offers two summer sessions between the spring and fall semesters: a four-week intersession followed by an eight-week summer session. The summer courses give students the opportunity to accelerate in existing academic programs and provide educational enrichment for all students. Information regarding admission procedures and summer school calendar dates may be found in the front of this Bulletin.

Lexington residents who would like a copy of summer school course offerings mailed to them should contact the Office of Summer School at (606) 257-3382. Kentucky residents outside of Lexington may call toll-free: 1-800-432-0963, extension 7-3382. Those outside Kentucky may call the Summer School at 1-800-325-2766, extension 7-3382.

# COMMUNITY COLLEGES

*Ben W. Carr, Ed.D., is Chancellor, Community College System; Anthony Newberry, Ph.D., is Vice Chancellor for Academic Affairs; Jack B. Jordan, D.B.A., is Vice Chancellor for Business Affairs.*

The University of Kentucky Community College System is 14 community colleges located throughout the state with more than 100 extended sites, centers and campuses. The system serves more than one-third of all undergraduate students in public higher education in Kentucky. In the fall of 1994, the enrollment totaled 45,581 students.

The two-year community college is a twentieth-century phenomenon in the history of education. Unlike four-year research institutions whose roots go back some 900 years in Europe, the two-year community college is a relative newcomer among American educational institutions. Sixty percent were founded within the past 30 years.

In this short time, the community college movement has grown to include over 1,500 colleges, enrolling more than six million. This represents approximately 40 percent of all students presently enrolled in some facet of higher education in the United States. It was during this 30-year period that the UK Community College System was created and rapidly developed to serve the individual needs of the people of Kentucky.

In 1962 the Kentucky General Assembly authorized formation of a state system and entrusted the University of Kentucky Board of Trustees with the authority to operate such a system. Five University Centers—Ashland, Henderson, Fort Knox, Northern (at Covington), and Southeast (at Cumberland), were incorporated into this new system. The system was implemented by the UK Board of Trustees in 1964.

The individual colleges are: Ashland Community College, Elizabethtown Community College, Hazard Community College, Henderson Community College, Hopkinsville Community College, Jefferson Community College, Lexington Community College, Madisonville Community College, Maysville Community College, Owensboro Community College, Paducah Community College, Prestonsburg Community College, Somerset Community College, and Southeast Community College.

The mission of the UK community colleges is threefold:

- to offer curricula for the first two years of a baccalaureate program which can be transferred to other four-year institutions, both private and public;
- to offer career-oriented programs that lead to an associate in applied science degree and are designed to prepare students for immediate technical or semiprofessional employment;
- to provide general educational opportunities for citizens in their immediate areas, including evening classes, workshops, seminars, short courses, concerts, exhibits, lectures, dramas, festivals – all designed to meet individual and community needs.

Complete information on the various programs may be obtained from the Community College Bulletin, available from the Community College System Office, 112 Breckinridge Hall, University of Kentucky, Lexington, KY 40506-0056, or from any community college.



# COURSE NUMBERING SYSTEM

**001 to 099** — Noncredit and/or nondegree courses

**100 to 199** — Open to freshmen; undergraduate credit only

**200 to 299** — Sophomore classification or consent of instructor required; undergraduate credit only

**300 to 399** — Junior classification required; undergraduate credit only

**400 to 499** — Junior classification required; undergraduate credit; graduate credit for nonmajors only if letter G appears after number

**500 to 599** — Junior classification required; undergraduate and graduate credit

**600 to 799** — Graduate classification required

**800 to 999** — Open only to students in professional colleges and to students in other colleges offering professional degrees

**R** — The letter **R** following the course designation and number indicates a remedial course. No course designated with an **R** will be counted as credit toward a bachelor's degree.

Courses may be approved for variable credits, e.g., (1-3), (2-6), etc. In no case, however, may the total credits exceed the maximum number authorized for the course.

Repeated registration in a course may be allowed if the course description carries the statement: "May be repeated to maximum of . . . credits." However, a student may enroll only one time in a specific course during a given semester. Courses with the same number are not considered to be the same course if different identifying titles are an integral part of the record.

*Unless indicated in the course description, the number of credits for a course indicates the number of lecture or discussion or class hours.*

Exceptions to the requirements for admission to courses may be made as follows:

a. Freshmen and sophomores may be admitted to courses numbered between 300 and 499, upon approval of the instructor and the dean of the student's college. Such approval is limited to students who have demonstrated superior ability or preparation.

b. Seniors with superior ability or preparation may be admitted to courses numbered between 600 and 799, upon approval of the instructor, the dean of the student's college and the Dean of The Graduate School.

c. Courses elected on a pass-fail basis.

# ABBREVIATIONS

The University of Kentucky has established the following set of standardized abbreviations for its academic departments and areas of study. These abbreviations should be used in making out registration worksheets and when referring to specific course offerings. The corresponding course descriptions appear beginning on the page listed after the prefix and department title below.


A&S–Arts and Sciences ..... 156
A-E–Art Education ..... 156
A-H–Art History ..... 156
A-S–Art Studio ..... 157
AAS–African-American Studies ..... 159
ABT–Agricultural Biotechnology ..... 159
ACC–Accounting ..... 159
AEC–Agricultural Economics ..... 160
AED–Agricultural Education ..... 161
AEN–Agricultural Engineering ..... 161
AGC–Agricultural Education, Communication, Leadership, and Home Economics Education ..... 162
AGR–Agronomy ..... 163
AHP–Allied Health Professions ..... 164
ANA–Anatomy and Neurobiology ..... 267
ANS–Anesthesiology ..... 269
ANT–Anthropology ..... 164
APP–Appalachian Studies ..... 166
ARC–Architecture ..... 166
ART–Art ..... 167
AS–Aerospace Studies ..... 167
ASC–Animal Sciences ..... 168
AST–Astronomy ..... 169
B&E–Business and Economics ..... 169
BA–Business Administration ..... 169
BCH–Biochemistry ..... 269
BIO–Biological Sciences ..... 169
BME–Biomedical Engineering ..... 172
BSC–Behavioral Sciences ..... 269
BUS–Business and Office Technology ..... 172
CD–Communication Disorders ..... 173
CDE–Community Dentistry ..... 263
CDS–Conjoint Dental Science ..... 263
CE–Civil Engineering ..... 173
CEP–Cooperative Education ..... 176
CEX–Cooperative Extension ..... 176
CHE–Chemistry ..... 176
CJT–Communication (Graduate) ..... 177
CLA–Classical Languages and Literatures ..... 178
CLS–Clinical Laboratory Sciences ..... 178
CME–Chemical Engineering ..... 180
CNU–Clinical Nutrition ..... 180
COM–Communication ..... 181
CON–Conjoint–Medicine ..... 270
CPC–Clinical Pastoral Counseling ..... 181
CS–Computer Science ..... 182
DIP–Diplomacy and International Commerce ..... 183
DIS–Decision Science and Information Systems ..... 183
DMT–Interior Design, Merchandising, and Textiles ..... 184
DR–Diagnostic Radiology ..... 270
ECO–Economics ..... 185
EDA–Administration and Supervision ..... 187
EDC–Curriculum and Instruction ..... 187
EDP–Educational and Counseling Psychology ..... 190
EDS–Special Education ..... 191
EDU–Education ..... 193
EDV–Vocational Education ..... 193
EE–Electrical Engineering ..... 194
EGR–Engineering ..... 196
EM–Engineering Mechanics ..... 196
END–Endodontics ..... 264
ENG–English ..... 197
ENS–Environmental Studies ..... 199
ENT–Entomology ..... 199
EPE–Educational Policy Studies and Evaluation ..... 200
ER–Emergency Medicine ..... 270
ES–Environmental Systems ..... 201
EXP–Experiential Education ..... 201
FA–Fine Arts ..... 201
FAM–Family Studies ..... 201
FIN–Finance ..... 203
FOR–Forestry ..... 204
FP–Family Practice ..... 271
FR–French Language and Literature ..... 205
FSC–Food Science ..... 206
GEN–General Agriculture ..... 206
GEO–Geography ..... 206
GER–Germanic Languages and Literatures ..... 208
GLY–Geological Sciences ..... 209
GRN–Gerontology ..... 210
GS–The Graduate School ..... 211
HA–Health Administration ..... 211
HDI–Human Development Institute ..... 211
HEE–Home Economics Education ..... 211
HES–Human Environmental Sciences ..... 212
HIS–History ..... 212
HMN–Humanities ..... 215
HMT–Hospitality Management ..... 215
HON–Honors ..... 215
HOR–Horticulture ..... 216
HSE–Health Sciences Education ..... 216
HSM–Health Services Management ..... 217
IND–Industrial Education ..... 193
ISP–International Studies Program ..... 217
JAT–Journalism, Advertising, Telecommunications ..... 217
KHP–Kinesiology and Health Promotion ..... 218
LA–Landscape Architecture ..... 221
LAS–Latin American Studies ..... 221
LAW–Law ..... 262
LIN–Linguistics ..... 221
LIS–Library and Information Science ..... 221
MA–Mathematics ..... 222
MB–Microbiology ..... 172
MD–Medicine (Special Topics) ..... 267
ME–Mechanical Engineering ..... 225
MED–Medicine ..... 271
MFS–Manufacturing Systems Engineering ..... 226
MGT–Management ..... 227
MI–Microbiology and Immunology ..... 271
MKT–Marketing ..... 227
MNG–Mining Engineering ..... 228
MS–Military Science ..... 229
MSC–Modern Studies Curriculum ..... 229
MSE–Materials Science and Engineering ..... 229
MUC–Class Instruction in Music ..... 230
MUP–Music Performance ..... 231
MUS–Music ..... 231
NEU–Neurology ..... 272
NFS–Nutrition and Food Science ..... 234
NRC–Natural Resource Conservation and Management ..... 235
NS–Nutritional Sciences ..... 235
NUR–Nursing ..... 235
OBG–Obstetrics and Gynecology ..... 272
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# COURSE DESCRIPTIONS

Course descriptions are arranged alphabetically **by prefix**. Courses on the Lexington campus appear first, followed by courses of the College of Law, College of Dentistry and College of Medicine.

## A&S Arts and Sciences

**A&S 100 SPECIAL INTRODUCTORY COURSE: Title to be Assigned.** (1-6)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Dean of the College of Arts and Sciences. A particular title may be offered at most twice under the A&S 100 number. Students may not repeat under the same title. May be repeated to a maximum of 12 credits. Prereq: Will be set by instructor.

**A&S 103 BASIC INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES I (Subtitle required).** (3-5)
This course provides elementary language instruction with an emphasis upon the spoken language of everyday use where appropriate. Writing and the elements of grammar are gradually introduced. Students may not repeat this course under the same subtitle. Prereq: Will be set by instructor.

**A&S 104 BASIC INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES II (Subtitle required).** (3-5)
A continuation of A&S 103. Students may not repeat this course under the same subtitle. Prereq: A&S 103.

**A&S 203 INTERMEDIATE INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES I (Subtitle required).** (3-5)
This course provides intermediate instruction in a less commonly taught language. Development of speaking, listening, reading, and writing skills, as appropriate, will be stressed. Students may not repeat this course under the same subtitle. Prereq: A&S 104 in the same language or permission of instructor.

**A&S 204 INTERMEDIATE INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES II (Subtitle required).** (3-5)
A continuation of A&S 203. Students may not repeat this course under the same subtitle. Prereq: A&S 203 in the same language or permission of the instructor.

**A&S 300 SPECIAL COURSE.** (1-3)
Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Arts and Sciences. A particular course may be offered at most twice under the A&S 300 number, and no A&S 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor.

**A&S 301 MINI-COLLEGE IIIB: (TWO SUBTITLES REQUIRED).** (1-5)
A course for sophomores enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

**A&S 302 MINI-COLLEGE IVB: (TWO SUBTITLES REQUIRED).** (1-5)
A course for sophomores enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

**A&S 500 SPECIAL COURSE (Subtitle required).** (1-3)
Interdisciplinary, topical, or experimental courses to be approved by the Dean of the College of Arts and Sciences and the Dean of the Graduate School. A particular course may be offered at most twice under the A&S 500 number. Open to all university students, subject to such limitations or prerequisites as set by the instructor. Prereq: As specified by the instructor.

## A-E Art Education

***A-E 270 INTRODUCTION TO ART EDUCATION.** (2)
A lecture-laboratory course investigating the theoretical, historical, psychological and sociological foundations of art education. Critical examination of individual and group activities currently offered in the elementary school art program. Lectures, curriculum design, evaluation of process and technique. Introduction to the visual arts through studio experiences. Lecture, one hour; laboratory, two hours per week. A-E 270 and A-E 272 together satisfy the state art requirement for general elementary teacher certification. Prereq: EDP 202.

**A-E 272 WORKSHOP IN DESIGN EDUCATION.** (2)
Exploration and analysis of design, media and concepts with special attention to classroom application. Lecture, one hour; laboratory, two hours per week. Prereq: A-E 270.

**A-E 395 INDEPENDENT WORK: ART EDUCATION.** (1-3)
Supervised individual research, practicum, and field experience leading to the development of art education curriculum theory, and teaching techniques appropriate for various populations and conditions. A learning contract will be submitted to both the department and to the office of the dean at the time of registration. May be repeated to a maximum of six credits. Prereq: Major and consent of instructor.

**A-E 399 EXPERIENTIAL EDUCATION.** (1-15)
Development of personally motivated and planned projects and internships in art education and interdisciplinary program activities outside the academic classroom experience, encompassing recreation, general education, adult education, special education, state programs, and group field experiences and workshops. May be repeated to a maximum of 15 credits. (Approval of A&S dean required for more than six credits per semester.) Prereq: Recommendation of art faculty member and department chairman; completion of departmental learning agreement.

**A-E 515 INTRODUCTION TO ART THERAPY.** (3)
An examination of various historical and contemporary conceptions of the therapeutic function and value of art from an art education perspective. The impact of art experience on emotional, intellectual and behavioral development and/or rehabilitation will be explored through readings, discussions, guest lectures, and lab experiences. Lecture, two hours per week; laboratory, two hours per week. Prereq: PSY 331 and major or consent of instructor.

**A-E 525 THE ELDERLY AND THE ARTS.** (3)
An examination of the problems of the elderly and the possibilities of art education for older persons in various settings including nursing homes, day care and recreation centers, housing complexes, and continuing education programs. The impact of art experience on the psychological, social, and physical well-being of the older person and the initiation of quality programs in the arts will be explored through readings, lectures, demonstrations, and field experience. Lecture, two hours; laboratory, two hours.

***A-E 538 ADVANCED ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL.** (3)
Planned to give the elementary teacher an understanding of teaching methods involved in, and construction of, art activities which would enrich the classroom program.

**A-E 545 TOPICAL STUDIES IN ART EDUCATION (Subtitle required).** (3)
Intensive study and analysis of a designated topic, issue or development in the philosophy, history, or methodology of art education in community and public school settings. May be repeated to a maximum of six credits. Prereq: Art education major or consent of the instructor.

***A-E 577 ART IN SECONDARY SCHOOLS.** (3)
This course provides students with an overview of the secondary school in American education and explores the history, theory, techniques and contemporary issues of teaching art in the secondary schools. Skills in the planning of multicultural activities and the teaching and evaluation of secondary art experiences are stressed. Full class instruction, video, micro-teaching, laboratory and studio experiences are incorporated into class design. Prereq: Major in art education or consent of instructor.

***A-E 578 ART IN ELEMENTARY SCHOOLS.** (3)
Study of perceptual and aesthetic awareness in children. Field and practicum experiences with methods and materials appropriate to the teaching of art in the elementary school. Multicultural activities stressed. Lesson planning, curriculum design, evaluation, teaching skills, classroom safety, multicultural activities included: lecture, demonstration, micro-teaching laboratory and studio experiences. Prereq: Major in art education, or consent of the instructor.

**A-E 579 SEMINAR IN ART EDUCATION.** (2)
Inquiry into the relationship of current philosophies of art education and aesthetics; a consolidation of art education ideas with a formation of criteria for making value judgments; the development of a personal viewpoint consistent with education and art as humanistic endeavors. Prereq: Major in art education, or consent of the instructor.

***A-E 645 TOPICAL RESEARCH IN ART EDUCATION (Subtitle required).** (3)
Advanced study and research of a designated topic, issue, or development in the philosophy, history, or methodology of art education in community and public school settings. May be repeated to a maximum of six credits. Prereq: Graduate standing in art education.

**A-E 670 SCHOOL AND COMMUNITY ART.** (3)
Analysis of the social function of art; organization of school and community related programs in art; case studies of existing programs. Field experience, educational involvement. Lectures and demonstrations. Prereq: Major in art education or consent of instructor.

**A-E 695 INDEPENDENT WORK: ART EDUCATION.** (1-3)
Supervised individual research, experimental practicum, and the initiation of field programs leading to the discovery and development of new knowledge in art education theory and method. A formal learning contract between student and supervising faculty member is required. May be repeated to a maximum of six credits. Prereq: Graduate standing in the department and consent of instructor.

**A-E 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

## A-H Art History

**A-H 105 ANCIENT THROUGH MEDIEVAL ART.** (3)
Survey of the development of art and architecture with primary emphasis on cultures of Egypt, Western Asia, Greece, Rome, and medieval Europe.

**A-H 106 RENAISSANCE THROUGH MODERN ART.** (3)
Historical development of Western art and architecture from the fourteenth century through the present.

**A-H 309 OLD KINGDOM EGYPT.** (3)
Major monuments will be presented in terms of the archaeological record and in terms of the development of kingship, occupational status, life style and speculative thought of the ancient Egyptians during a period of prosperity and expanding trade and cultural horizons.

**A-H 310 ART AND ARCHAEOLOGY OF EGYPT AND WESTERN ASIA.** (3)
Study of Nilotic, Palestinian, and Mesopotamian civilizations as reflected in art and material culture from the 5th through the 1st millennia B.C. Emphasis usually will be on Egyptian culture and its interconnections with Western Asia.

**A-H 311 GREECE: FROM THE DARK AGES INTO HISTORY.** (3)
Study of the art and architecture of Greece from about the 11th through the 6th century B.C. Emphasis on the development of social and philosophical traditions as expressed in art and material culture. (Same as CLA 311.)

**A-H 312 THE ART OF CLASSICAL GREECE.** (3)
Study of the art and architecture of Greece in the 5th and 4th centuries B.C. in their historical context. The contributions of Greece to the art of the Roman Republic and Empire will also be considered. (Same as CLA 312.)

***A-H 313 ROMAN ART.** (3)
Study of the art and architecture of Rome from the early Republic through the age of Constantine. Attention will focus on painting, sculpture and architecture as reflections of political, social and cultural developments in the Roman world. Prereq: A-H 105 recommended. (Same as CLA 313.)

**A-H 320 EARLY MEDIEVAL ART.** (3)
Western medieval art and architecture from its origins in the Late Antique through the early Ottonian (Saxon) period. Course will examine the art of the "Barbarians" Hiberno-Saxon and later Northern art, Mozarabic and proto-Romanesque forms, and the relationship between art and the concepts of Renaissance and Imperium under Charlemagne and his successors. Prereq: A-H 105 recommended.

**A-H 321 ROMANESQUE AND GOTHIC ART.** (3)
Later medieval art and architecture in the West, with emphasis on the variety of the Romanesque, the formation of the Gothic style, and the interaction of intellectual and religious movements. Prereq: A-H 105 recommended.

***A-H 322 BYZANTINE ART.** (3)
Study of the art forms of Byzantium (the Eastern Medieval Empire) from its origins in Late Antique and Early Christian art to its final demise in 1453. Emphasis on the continuity and transformation of the classical tradition and on the innovations peculiar to Byzantine art within its religious, imperial, and social context. Prereq: A-H 105 recommended.

**A-H 330 ITALIAN RENAISSANCE ART.** (3)
An examination of sculpture, painting, and architecture in Italy from the 14th through the 16th centuries. An effort is made to study art in its historical and cultural context. Prereq: A-H 106 recommended.

**A-H 331 NORTHERN EUROPEAN RENAISSANCE ART.** (3)
Painting, sculpture and graphic arts in the Low Countries, Germany and France from the late 14th century through the Reformation. Historical, religious and social factors are considered as well as style. Prereq: A-H 106 recommended.

**A-H 332 BAROQUE AND ROCOCO ART.** (3)
An examination of the development of Western European painting, printmaking, sculpture and architecture from 1600-1750. In order to study the art within its given cultural context, the course is organized by region, including Italy, Flanders, Spain, Holland, France and England. The artistic and cultural interrelationships existing between these regions are stressed. Prereq: A-H 106 recommended.

**A-H 340 NINETEENTH CENTURY ART.** (3)
A study of the visual arts in the nineteenth century with emphasis on their historical and cultural background. Analysis of the origin and development of major artistic currents in Europe. Prereq: A-H 106 recommended.

***A-H 341 MODERN ART II: TWENTIETH CENTURY ART.** (3)
Examination of the visual arts from the 1800s to the present with emphasis upon Europe and North America. Major developments in painting and sculpture (and to a lesser extent, design, architecture, film, and performance) are analyzed in their contemporary social, intellectual, and political contexts. Prereq: A-H 106 recommended.

***A-H 342 AMERICAN ART.** (3)
A chronologically organized examination of the visual arts of the peoples of the United States from the colonial period to the present. Different genres of art, the changing roles of artists, and the emergence of art institutions and audiences for art are explored within the context of democratic public life in the United States. Prereq: A-H 106 recommended.

**A-H 390 TOPICAL RESEARCH IN ART HISTORY.** (3)
Investigation of special critical or historical problems of form and content which cross the customary period divisions of Art History. May be repeated to a maximum of six credits. Prereq: One Art History course or consent of the instructor.

**A-H 395 INDEPENDENT WORK: ART HISTORY.** (1-3)
Supervised and sustained individual research in the history of art leading to the discovery and demonstration of new knowledge. A formal learning contract between student and supervising faculty member required. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department and consent of the instructor.

**A-H 399 EXPERIENTIAL EDUCATION IN ART HISTORY.** (1-15)
A community-based or field-based experience in Art History. A formal learning contract among student, field supervisor, and supervising faculty member required. May be repeated to a maximum of 15 hours. Prereq: A-H 105 and A-H 106.

**A-H 510 STUDIES IN ANCIENT ART.** (3)
Seminar dealing with a single archaeologically defined area within a limited chronological framework. Subjects usually will be drawn from Chalcolithic through Bronze Age eastern Mediterranean or Aegean cultures. Emphasis on reconstructing complex ancient societies on the basis of material culture. May be repeated to a maximum of six credits. Prereq: A-H 105 and one of the following: A-H 310, 311, 312, or consent of instructor.

**A-H 511 PREHISTORIC EGYPT.** (3)
The nature of daily life and intellectual posture as expressed in archaeological material will be studied. Continuities and discontinuities between prehistoric and pharaonic times will be investigated. Prereq: A-H 309 or A-H 310 or consent of instructor.

**A-H 520 STUDIES IN MEDIEVAL ART.** (3)
Special topics in period and regional styles, selected artists or works, iconography, or particular problems in medieval art and architecture of Western Europe and the Byzantine Empire. May be repeated to a maximum of six credits. Prereq: A-H 105 and one art history course at the 300 level or consent of instructor.

**A-H 530 STUDIES IN RENAISSANCE ART.** (3)
Investigation of a specialized topic or problem selected from art of the 14th through the 17th centuries. Readings, lectures, individual projects and class discussions. May be repeated to a maximum of six credits. Prereq: A-H 106 and either A-H 330, 331, or 332 or consent of instructor.

**A-H 540 STUDIES IN MODERN ART.** (3)
Intensive study of a particular artist, architect, or group, specific media, techniques, trends, or themes in the visual arts from the eighteenth century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: A-H 106 or consent of instructor.

**A-H 550 SELECTED TOPICS IN THE HISTORY OF PHOTOGRAPHY.** (3)
An intensive investigation into a particular aspect of the development of photography as a fine art form and phenomenon related to the space-time considerations. A critical analysis will be given to the growth of thought and theory from the infancy of a mechanical medium to current uses of photography as a means of: documentation, self-expression, and exploration of form. May be repeated to a maximum of nine credits. Prereq: Junior standing or permission of instructor. (Same as ARC 962.)

**A-H 560 ART HISTORY SEMINAR.** (3)
Training in art historical method with emphasis on interpretation of sources and the handling of visual and bibliographical material. Primarily for art history majors and graduate students. May be repeated to a maximum of six credits. Prereq: Three art history courses or consent of instructor.

**A-H 590 TOPICAL STUDIES IN ART HISTORY.** (3)
A topic or area not covered in the series of 500-589 courses; especially studies in media, forms, styles, iconography and in theoretical or critical studies. Readings, lectures, discussions. May be repeated to a maximum of nine credits. Prereq: Two art history courses or consent of the instructor.

**A-H 592 AESTHETICS.** (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts, in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. (Same as PHI 592.)

**A-H 598 COORDINATE STUDY.** (3)
Course number for those students wishing to do advanced work on a special subject in conjunction with a regularly scheduled 300-level class not previously taken by the student. May be repeated to a maximum of six credits. Prereq: Two art history courses or consent of instructor.

**A-H 610 PROBLEMS IN ANCIENT ART.** (3)
Intensive study of a limited typological or historical problem as an introduction to the methodology of original research. Students will give evidence of knowledge of appropriate bibliography and present the results of their research in forms previously agreed upon with the instructor. May be repeated to a maximum of six credits. Prereq: Eighteen credit hours drawn from ancient history, classical languages and literatures, anthropology, and/or art history.

**A-H 620 PROBLEMS IN MEDIEVAL ART.** (3)
Research and analysis in selected topics of art history from the Late Antique-Early Christian period through the 15th century. Readings, discussion, formal presentation of research. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

**A-H 630 PROBLEMS IN RENAISSANCE ART.** (3)
Intensive study of a topic or problem from art of the 14th through 17th centuries. Individual research as training in historical methodology and formal presentation of this research will be required. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

**A-H 640 PROBLEMS IN MODERN ART.** (3)
Investigation of particular critical and historical problems in the visual arts from the 18th century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: Eighteen credits in art history or consent of the instructor.

**A-H 690 TOPICAL PROBLEMS IN ART HISTORY.** (3)
Investigation of special critical and historical problems crossing the customary period divisions of art history. Lectures, discussion, original research, and critiques. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

**A-H 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**A-H 780 INDEPENDENT WORK: ART HISTORY.** (1-3)
Supervised and sustained individual research and interpretation in the history of art leading to the discovery and demonstration of new knowledge. A formal learning contract between student and supervising faculty member required. May be repeated to a maximum of six credits. Prereq: Graduate standing in the department, 18 credits in art history and consent of instructor.

## A-S Art Studio

**A-S 102 VISUAL EXPLORATION I.** (3)
Introductory studio experience in two-dimensional representation and abstraction using a variety of basic drawing materials and processes. Six studio hours per week.

**A-S 103 VISUAL EXPLORATION II.** (4)
Introductory studio experience in three dimensional representation and abstraction. A variety of sculptural materials and basic shop processes will be studied. Eight studio hours per week.

**A-S 200 STUDIO I.** (3)
Studio investigation of recent ideas, values, and directions in Art introduced through a variety of traditional and nontraditional processes, materials, and methods. Nine studio hours per week. Prereq: A-S 102 and 103.

**A-S 202 FIGURE DRAWING.** (3)
The human figure will be explored as a source for drawing. All two-dimensional techniques and modes of forming, both traditional and contemporary-experimental, will be used. Studio, eight hours; one hour by appointment. Prereq: A-S 102 or consent of instructor.

**A-S 215 STUDIO II.** (3)
Continued studio experience emphasizing the descriptive and expressive function of shape and color in visual organization using two dimensional marking and shaping materials and processes. Nine studio hours per week. Prereq: A-S 102.

**A-S 255 STUDIO III.** (3)
Continued studio experience in three dimensional expression, emphasizing design and technical development, including modeling, mold making, fabrication and assemblage in a variety of materials. Nine studio hours per week. Prereq: A-S 103.

**A-S 310 PAINTING I.** (3)
Concentrated painting experience stressing enlargement of formal understanding and personal expression. Prereq: A-S 215 or consent of instructor.

**A-S 311 PAINTING II.** (3)
A continuation of A-S 310. Prereq: A-S 310 and consent of the instructor.

**A-S 320 PRINTMAKING I.** (3)
Introductory studio experience in printmaking media and procedures relevant to individual development. Nine studio hours per week. Prereq: A-S 102 or consent of instructor.

**A-S 321 PRINTMAKING II.** (3)
A continuation of A-S 320. Nine studio hours per week. Prereq: A-S 320 or consent of instructor.

**A-S 330 INTERMEDIATE DRAWING.** (3)
Continued studio experience in two-dimensional representation and abstraction using a variety of drawing materials and processes. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 102 or consent of instructor.

**A-S 340 GRAPHIC DESIGN I.** (3)
Introductory studio experience in the application of visual design to graphic communication. Nine studio hours per week. Prereq: A-S 102 and A-S 103, or consent of instructor.

**A-S 341 GRAPHIC DESIGN II.** (3)
Continued exposure to the aesthetics and principles of design and their creative application in visual communication. Class projects will develop sensibilities gained in A-S 340 such as the use of type as a spatial element; selection of typefaces, hand-lettering, and graphic imagery. Mass production procedures and techniques will be introduced. Studio, nine hours per week. Prereq: A-S 340.

**A-S 350 FIBER I.** (3)
Introductory studio experience to the design and fabrication of woven and non-woven fiber art in two and three dimensions; emphasis on color, structure and related aesthetic values. Nine studio hours per week. Prereq: A-S 102 or A-S 103 or consent of instructor.

**A-S 351 FIBER II.** (3)
Continuation of A-S 350, emphasis on developing perceptual and technical skills toward increasing aesthetic involvement with woven and nonwoven fiber and fabric. Nine studio hours per week. Prereq: A-S 350 or consent of instructor.

**A-S 360 SCULPTURE I.** (3)
Concentrated sculptural experience in a variety of media emphasizing expanded understanding of material and methods. Nine studio hours per week. Prereq: A-S 255 or consent of instructor.

**A-S 361 SCULPTURE II.** (3)
A continuation of A-S 360. Nine studio hours per week. Prereq: A-S 360 or consent of instructor.

**A-S 370 CERAMICS I.** (3)
Introductory studio experience to a variety of ceramic materials and processes. Nine studio hours per week. Prereq: A-S 103 or consent of instructor.

**A-S 371 CERAMICS II.** (3)
A continuation of A-S 370. Nine studio hours per week. Prereq: A-S 370 or consent of instructor.

**A-S 380 PHOTOGRAPHY I.** (3)
A-S 380 is an introductory course in photography. Although it provides a thorough background in basic techniques that students may apply to any discipline, its primary emphasis is upon the practice of the medium as a fine art. Students receive technical instruction in camera and lens construction, exposure controls, processing of black and white negatives and prints, and presentation. Studio, nine hours per week.

**A-S 381 PHOTOGRAPHY II.** (3)
A-S 381 is a continuation of A-S 380. The emphasis is upon refining visual perception and basic photographic skills with an introduction to some of the more advanced techniques of black and white photography. Students receive technical instruction in the Zone System, archival processing, toning, and presentation. Studio, nine hours per week. Prereq: A-S 380 or consent of instructor.

**A-S 384 COLOR PHOTOGRAPHY I.** (3)
A-S 384 is an introductory course in color photography. The emphasis is upon the unique qualities of color photography relating to visual perception. Students receive technical instruction in negative and transparency film development and printing. Studio, nine hours per week. Prereq: A-S 380 or consent of instructor.

**A-S 386 NONSILVER PHOTOGRAPHY I.** (3)
A-S 386 is an introductory course in nonsilver photography. The emphasis is upon the unique qualities of nonsilver photography relating to visual perception. Students receive technical instruction in the use of orthochromatic films, half-tone separations, cyanotypes, Van Dyke brown prints, and gum-bichromate prints. Studio, nine hours per week. Prereq: A-S 380 or consent of instructor.

**A-S 390 TOPICAL STUDIES (Subtitle required).** (3)
Studio investigation of art forms, processes, and topics not specially treated in the regular studio course of study. Topics announced in schedule book for each semester. Nine studio hours per week. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: To be specified as appropriate when topic is identified.

**A-S 395 INDEPENDENT WORK: ART STUDIO.** (1-3)
Supervised individual work in Art Studio. A learning contract will be submitted both to the department and the office of the dean at the time of registration. May be repeated to a maximum of nine credits. Prereq: Art major, senior standing, grade-point average of 3.0 within the department and consent of instructor.

**A-S 396 WORKSHOP (Subtitle required).** (1-6)
Workshops in a variety of media dealing with supervised investigation of Art-Studio problems. Studio, 3-18 hours per week. May be repeated to a maximum of nine credits when identified by different subtitles. Prereq: Consent of instructor.

**A-S 398 COORDINATED STUDIES IN ART STUDIO.** (3)
Supervised independent study in conjunction with regularly scheduled upper-division classes. Coordinate study credits may not be attached to any upper-division course in which the student is concurrently enrolled. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: Art major, junior standing or above, grade-point average of 3.0 in the department.

**A-S 399 EXPERIENTIAL EDUCATION.** (1-15)
Off-campus studio experience outside the academic environment leading to significant professional growth. A formal learning contract among student, field supervisor and the department. Studio hours per week by arrangement. May be repeated to a maximum of 15 credits. Prereq: Upper division standing; written statement of objective, recommendation of a studio faculty member and the approval of the department chairperson and the Office of Experiential Education.

**A-S 490 SENIOR SEMINAR.** (1)
Readings and critical discussion relating to art. Selection, preparation, and presentation of senior exhibitions and portfolios. To be taken during student's final year of study. Two lecture hours per week. Prereq: Senior standing in Department of Art.

**A-S 510 PAINTING III.** (3)
Supervised individual development in painting. Nine studio hours per week. Prereq: A-S 311 or consent of instructor.

**A-S 511 PAINTING IV.** (3)
Continuation of A-S 510; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 510 or consent of instructor.

**A-S 520 PRINTMAKING III.** (3)
Supervised individual development in printmaking. Nine studio hours per week. Prereq: A-S 321 or consent of instructor.

**A-S 521 PRINTMAKING IV.** (3)
Continuation of A-S 520; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 520 or consent of instructor.

**A-S 530 ADVANCED DRAWING.** (3)
Supervised individual development in drawing. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 330 or consent of instructor.

***A-S 540 GRAPHIC DESIGN III.** (3)
The analysis of popular graphic formats and their relationship to current ideas in painting and photography, stressing experiences gained by the student in other art-studio classes. Additional emphasis on practical considerations in developing visual communication design problems from initial concept to finished artwork. Exploration of specification procedures as they relate to printing papers, typesetting, and photographic methods. Studio, nine hours per week. Prereq: Successful admission to BFA program.

**A-S 550 FIBER III.** (3)
Supervised individual development in fiber. Nine studio hours per week. Prereq: A-S 351 or consent of instructor.

**A-S 551 FIBER IV.** (3)
Continuation of A-S 550; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 550 or consent of instructor.

**A-S 560 SCULPTURE III.** (3)
Supervised individual development in sculpture. Nine studio hours per week. Prereq: A-S 361 or consent of instructor.

**A-S 561 SCULPTURE IV.** (3)
Continuation of A-S 560; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 560 or consent of instructor.

**A-S 570 CERAMICS III.** (3)
Supervised individual development in ceramics. Nine studio hours per week. Prereq: A-S 371 or consent of instructor.

**A-S 571 CERAMICS IV.** (3)
Continuation of A-S 570; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 570 or consent of instructor.

**A-S 580 PHOTOGRAPHY III.** (3)
A-S 580 is a continuation of A-S 381. The emphasis is upon advanced black and white photographic processes and continued acquisition of skills for self-expression through the medium. Students receive technical instruction in the use of different photographic films, papers, and chemicals, as well as master printing processes. Studio, nine hours per week. Prereq: A-S 381 or consent of instructor.

**A-S 581 PHOTOGRAPHY IV.** (3)
A-S 581 is a continuation of A-S 580. The emphasis is upon advanced black and white photographic processes and continued acquisition of skills for self-expression through the medium. May be repeated to a maximum of six credits. Studio, nine hours per week. Prereq: A-S 580 or consent of instructor.

**A-S 584 COLOR PHOTOGRAPHY II.** (3)
A-S 584 is a continuation of A-S 384. The emphasis is upon advanced color photographic processes and continued acquisition of skills for self-expression through the medium. May be repeated to a maximum of six credits. Studio, nine hours per week. Prereq: A-S 384 or consent of instructor.

**A-S 586 NONSILVER PHOTOGRAPHY II.** (3)
A-S 586 is a continuation of A-S 386. The emphasis is upon advanced nonsilver photographic processes and continued acquisition of skills for self-expression through the various media. May be repeated to a maximum of six credits. Studio, nine hours per week. Prereq: A-S 386 or consent of instructor.

**A-S 596 WORKSHOP.** (1-6)
Workshops in a variety of media dealing with supervised investigation of advanced art studio problems. Prereq: Consent of instructor.

**A-S 610 PAINTING V.** (3)
Advanced studio investigation of current ideas in painting. Exploration of contemporary and traditional procedures, materials, and issues in a context of a group discussion and review. May be repeated to a maximum of nine credits. Prereq: Graduate standing in the department and approval of the instructor.

**A-S 611 PAINTING VI.** (3)
Continued studio investigation of current ideas in painting, with increased concentration on critical group discussions of student work and readings in contemporary art. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: A-S 610 and consent of instructor.

**A-S 620 PRINTMAKING V.** (3)
Advanced studio investigation of current ideas in printmaking. Exploration of contemporary and traditional procedures, materials, and issues. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: Graduate standing in the department and consent of the instructor.

**A-S 621 PRINTMAKING VI.** (3)
Continued advanced studio investigation of current ideas in printmaking. Increased concentration of technical and aesthetic development in preparation for entry into the professional environment. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: A-S 620.

**#A-S 630 GRADUATE DRAWING.** (3)
Supervised studio course in graduate-level drawing and mixed media works on paper or other two-dimensional surfaces. Emphasis will be placed on personal style, its identification, definition and further development in the context of contemporary drawing. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**A-S 650 FIBER V.** (3)
In this supervised graduate studio course in fiber, emphasis will be placed on personal style, its identification, definition, and further development in the context of major directions in the fiber arts. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 651 FIBER VI.** (3)
Continued advanced studio investigation of current ideas in the fiber arts. Increased concentration on technical and aesthetic development, professional readings, and group discussion. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 650.

**A-S 660 SCULPTURE V.** (3)
In this supervised studio course in graduate sculpture, emphasis will be placed on personal style, its identification, definition, and further development in the context of modern sculpture. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 661 SCULPTURE VI.** (3)
Continued advanced studio investigation of current ideas in sculpture. Increased concentration on technical and aesthetic development, professional readings, and group discussion. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 660.

**A-S 670 CERAMICS V.** (3)
In this supervised studio course in graduate ceramics, emphasis will be placed on personal style, its identification, definition, and further development in the context of direction in modern ceramics. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 671 CERAMICS VI.** (3)
Continued advanced studio investigation of current ideas in ceramics, increased concentration on technical and aesthetic development, professional readings, and group discussions. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: A-S 670.

**A-S 680 PHOTOGRAPHY V.** (3)
A-S 680 is a continuation of A-S 581. In this supervised studio course in graduate photography, emphasis will be placed on personal style, its identification, definition, and further development in the context of major directions in photography. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 581 and consent of instructor.

**A-S 681 PHOTOGRAPHY VI.** (3)
A-S 681 is a continuation of A-S 680. The emphasis will be upon continued advanced studio investigation of current ideas in photography with increased concentration on technical and aesthetic development, professional readings, and group discussion. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 680 and consent of instructor.

**#A-S 710 PROBLEMS IN PAINTING.** (3)
Sustained individual projects focusing on problems and experimental work in the technical and theoretical aspects of painting. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**#A-S 720 PROBLEMS IN PRINTMAKING.** (3)
Sustained individual projects focusing on problems and experimental work in the technical and theoretical aspects of printmaking. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**#A-S 730 PROBLEMS IN DRAWING.** (3)
Sustained individual projects focusing on problems and experimental work in the technical and theoretical aspects of drawing. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**A-S 740 PROBLEMS IN FIBER.** (3)
Sustained individual problems and experimental work in the technical and theoretical problems of fiber. May be repeated two times to a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**A-S 750 PROBLEMS IN SCULPTURE.** (3)
Sustained individual problems and experimental work in the technical and theoretical problems of sculpture. May be repeated to a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 767 M.F.A. STUDIO THESIS PROJECT.** (1-6)
Independent research and preparation for the M.F.A. thesis exhibition. For the student working in a highly technical medium or process, the preparation of a correlated written thesis under close guidance will be the outcome. The student will be expected to know the standard forms for photographic records and the preparation of a professional portfolio. May be repeated to a maximum of six credits. Prereq: Normally taken during final semester for graduate study.

**A-S 770 PROBLEMS IN CERAMICS.** (3)
Sustained individual problems and experimental work in the technical and theoretical problems of ceramics. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 779 PROBLEMS IN PHOTOGRAPHY.** (3)
A-S 779 emphasizes sustained individual problems and experimental work in the technical and theoretical problems of photography. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

**A-S 780 PROBLEMS IN DESIGN.** (3)
Sustained individual problems and experimental work in the technical and theoretical problems of design. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

**A-S 793 GRADUATE STUDIO SEMINAR.** (1)
A seminar especially for graduate students in the studio area, in all areas of concentration. Lectures, discussion and criticism will focus on current formal and aesthetic problems in the arts. Emphasis will be placed on the integration of concepts arising in the different fields in the visual arts. Required of M.F.A. candidates for three semesters. May be repeated to a total of three credits. Prereq: Graduate standing in the department.

**#A-S 795 INDEPENDENT RESEARCH.** (1-3)
Advanced studio investigation of art forms, processes, and topics not specially treated in the regular curriculum. May be repeated to a maximum of nine credits. Studio, three hours per week per credit. Prereq: Twelve credits in upper division studio work and consent of instructor.

**†A-S 799 PROBLEMS IN PAINTING AND PRINTMAKING.**

## AAS African-American Studies

**AAS 200 INTRODUCTION TO AFRICAN-AMERICAN STUDIES.** (3)
An interdisciplinary course which establishes the intellectual context for an examination of the African-American experience; it introduces students to the various approaches scholars use to analyze that experience. This course employs a topical framework which permits focus on issues reflecting the diversity and richness of African-American experience across geographic boundaries.

**AAS 400 SPECIAL TOPICS IN AFRICAN-AMERICAN STUDIES (Subtitle required).** (3)
Detailed investigation of a particular topic in African-American Studies, with emphasis both on content and existing research. Topics will vary from semester to semester and are announced the preceding semester. May be repeated to a maximum of six credits when identified by a different subtitle. Prereq: Twelve hours of African-American Studies minor courses, including AAS 200.

**AAS 401 INDEPENDENT READING AND RESEARCH IN AFRICAN-AMERICAN STUDIES.** (3)
For African-American Studies minors. The student pursues a course of reading and research under the guidance of a staff member, completes a major research project, and takes an examination. A written contract defining the area of study is negotiated between student and instructor at the beginning of the course. May be repeated to a maximum of six credits. Prereq: African-American Studies minor, 12 hours of African-American Studies minor courses, including AAS 200.

## ABT Agricultural Biotechnology

**#ABT 101 INTRODUCTION TO BIOTECHNOLOGY.** (1)
An introduction to biotechnology: historical perspectives, current applications and future directions. The course will consist of informal lectures and interactive discussions led by Biotechnology faculty and visiting professionals. The course will also orient students to the educational/career opportunities in Biotechnology and assist them in developing a focus for their individualized degree programs. Lecture, two hours per week. Prereq: First year or first semester transfer students in Agricultural Biotechnology.

**#ABT 201 SCIENTIFIC METHOD IN BIOTECHNOLOGY.** (1)
A course designed to acquaint students with the common experimental methods used in agricultural biotechnology. Students will be presented with several case studies which demonstrate basic scientific reasoning and experimental strategies. The students will then use their understanding of basic scientific methods and agricultural systems to critically evaluate work from the current scientific literature. Each student will be required to provide a written and oral evaluation of a research project in some aspect of agricultural biotechnology. The class will provide the students with the basic skills needed for preparing their own research proposals. Prereq: ABT 101 and enrollment in the Agricultural Biotechnology degree program or consent of instructor.

**#ABT 395 INDEPENDENT STUDY IN BIOTECHNOLOGY.** (1-4)
Independent study in biotechnology under the supervision of a faculty member. Prereq: Agricultural Biotechnology major and consent of appropriate instructor before registration.

**#ABT 399 EXPERIENTIAL LEARNING IN BIOTECHNOLOGY.** (1-6)
An internship in biotechnology under the supervision of a faculty member. May be repeated to a maximum of six credits. Prereq: Consent of the instructor, chairperson for the Agricultural Biotechnology degree program and completion of a learning contract before registration.

**#ABT 401 TECHNICAL WRITING AND PRESENTATIONS IN BIOTECHNOLOGY.** (2)
This course will focus on effective communication of ideas and research results in biotechnology. It will focus on both written presentations, in the form of research publications and research proposals, and oral presentations. The focus of this course is on student participation. Students will be required to provide both oral and written evaluations of research publications and proposals. The first part of the semester will focus on a dissection, evaluation, and discussion of recent Biotechnology-related research publications. Students will be required to provide both oral and written evaluations of the publications that are discussed. Next, they will discuss the aspects of successful oral presentations, including the effective use of visual aids. The middle of the semester will be spent developing a research proposal, focusing on the separate components of a proposal. The end of the semester will involve student presentations of a research proposal that they have developed. These presentations will be evaluated and discussed by the other members of the class. The goal of this course is to develop skills in the evaluation of research, to provide practice in scientific writing, to prepare Biotechnology students to write their independent study research proposals and written reports, to develop oral communication skills, and to expose students to current literature and research in Biotechnology. Lecture, discussion and oral presentations. Prereq: Agricultural Biotechnology major or consent of instructor.

**#ABT 495 EXPERIMENTAL METHODS IN BIOTECHNOLOGY.** (4)
A laboratory techniques course designed to give students the technical skills and understanding necessary to critically examine biological systems at the molecular level. The course will emphasize the principles of chemistry, biochemistry and molecular biology as applied to a model system for laboratory investigations. Laboratory, nine hours per week. Prereq: BIO 150 and AGR 360, or consent of instructor.

## ACC Accounting

**ACC 201 PRINCIPLES OF ACCOUNTING.** (3)
An introduction to accounting concepts and principles involved in the preparation of financial reports for internal and external use. Prereq: Sophomore standing.

**ACC 202 PRINCIPLES OF ACCOUNTING.** (3)
An introduction to the analysis and interpretation of accounting data and its use in management planning and control. Prereq: ACC 201 or BE 161 and BE 162.

**ACC 301 INTERMEDIATE ACCOUNTING I.** (3)
An in-depth study of valuation concepts for balance sheet accounts and income determination issues. Includes coverage of the accounting cycle, the income statement, the balance sheet, and treatments of interest, cash and receivables, inventories, and investments, plant and intangible assets, and depreciation and depletion. Prereq: ACC 202.

**ACC 302 INTERMEDIATE ACCOUNTING II.** (3)
Continuation of ACC 301. Includes coverage of current and long-term liabilities, stockholders equity, earnings per share, pensions, leases, income tax allocation, disclosure issues, and the statement of cash flows. Prereq: ACC 301 and ACC 324.

**ACC 324 ACCOUNTING INFORMATION SYSTEMS.** (3)
Fundamentals of data processing for business organizations, including manual and automated applications with emphasis on unit records, flow charts and control procedures in relation to both financial and nonfinancial data. Prereq: Six hours of accounting.

**ACC 395 INDIVIDUAL WORK IN ACCOUNTING.** (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

***ACC 399 INTERNSHIP IN ACCOUNTING.** (1)
A course designed for undergraduate accounting students who, through the Accounting Internship Director, have secured full-time, salaried, career-related positions under the supervision of a sponsoring employer. Enrollment in the course constitutes full-time status. Course may be taken on a pass-fail basis only and for no more than two consecutive semesters, repeated to a maximum of three credits. Prereq: Junior standing in accounting and approval of the Accounting Internship Director.

**ACC 401G ACCOUNTING THEORY.** (3)
An investigation into earlier attempts to develop a coordinated statement of accounting theory; a critical examination of selected current accounting practices; and discussion of recent developments in accounting research. Prereq: ACC 301.

**ACC 403G AUDITING.** (3)
The attest function of accounting with internal, independent and governmental application. Emphasis is placed on the standards and objectives of auditing and management's responsibilities in implementing internal control. Prereq: Senior standing.

**ACC 408G COST ACCOUNTING.** (3)
Concepts of cost in developing information for management use in the determination of income, the selections of activities (or projects) and the measurement of performance. Prereq: ACC 202 and ACC 324 or consent of instructor.

**ACC 410G NOT-FOR-PROFIT ACCOUNTING.** (3)
The requirements of adequate accounting systems for various governmental units, including the recording of usual transactions and the form and content of reports. Prereq: ACC 301.

**ACC 416G ACCOUNTING FOR BUSINESS COMBINATIONS.** (3)
Accounting records for consolidations and mergers, preparation of consolidated statements. Insolvency and receivership records and statements. Accounting for estates and trusts. Prereq: ACC 301, 302.

**ACC 417G INCOME TAXATION.** (3)
A comprehensive study of the federal income tax structure with emphasis upon the taxation of individuals. Consideration will also be given to basic corporate taxation as well as to administrative procedures and research. Prereq: ACC 301 or consent of instructor.

**ACC 503 ADVANCED AUDITING.** (3)
A case-oriented study of current practices in public accounting including applications of statistical sampling, computer-assisted auditing and official promulgations issued by the AICPA. This course also examines professional, ethical standards, professional liability and SEC reporting requirements. Students are expected to analyze actual case data; prepare written reports; and orally present and defend those reports. Prereq: ACC 403G.

**ACC 518 CONTROLLERSHIP.** (3)
A comprehensive study of the controller's objectives, responsibilities, functions, organizational roles, etc. Prereq: ACC 408G and at least senior standing, or consent of instructor.

**ACC 524 ADVANCED ACCOUNTING INFORMATION SYSTEMS.** (3)
The course covers the design of accounting systems and subsystems to implement effective planning and control for a variety of business decision-making problems. Case analysis and class projects are used to accomplish the course objectives. The microcomputer is integrated in the course through a vigorous overview of existing hardware and software technology. Widely used microcomputer applications software, including database management, spreadsheet, statistical analysis, and others, is introduced and used to accomplish course objectives. Prereq: ACC 302, 324, and 403G.

**ACC 577 TAXATION OF ENTITIES.** (3)
A survey and analysis of the taxation of corporations, partnerships, estates, and trusts. Students who have taken any other 500, 600, or equivalent level accounting tax course may not receive credit for this course. Prereq: ACC 417G or equivalent and consent of instructor.

**ACC 601 RESEARCH IN ACCOUNTING THEORY.** (3)
Critical examination of accounting concepts and standards. Study of current problems and contemporary developments reflected in accounting literature and reports. Prereq: Consent of instructor.

**ACC 603 ATTEST FUNCTION.** (3)
A critical examination of contemporary professional attestation theory and practice including a comprehensive review of AICPA audit case studies, statements on audit procedure, and their application in simulated business situations. Prereq: ACC 403G or consent of instructor.

**ACC 608 ADVANCED MANAGERIAL ACCOUNTING.** (3)
Accounting procedures for the evaluation of performance in business, including the analysis of revenues and costs by projects and responsibilities and the use of budget cost studies and rates of return. Prereq: ACC 408G.

**ACC 610 NOT-FOR-PROFIT AND REGULATORY ACCOUNTING.** (3)
A study of the contemporary issues in the area of not-for-profit and regulatory accounting. Prereq: ACC 410G or consent of instructor.

**ACC 611 PROFESSIONAL ISSUES IN ACCOUNTING.** (3)
The course involves a study of issues currently impacting the accounting profession, such as regulatory agencies, standard-setting organizations, and the legal framework within which the profession functions. Prereq: 24 hours of accounting. Open only to students in the Professional Program (5-Year Program) in their fifth year or consent of instructor.

**ACC 617 INCOME TAX DEVELOPMENT.** (3)
A theoretical and historical approach to the study of federal income taxation with emphasis upon the public finance, legal, and accounting aspects of its development. Consideration will be given to tax research and planning as well as to the critical appraisal of the current law and proposals for its revision. Prereq: ACC 417G or consent of instructor.

**ACC 619 INDEPENDENT STUDY IN ACCOUNTING.** (1-3)
Designed for students undertaking special studies to be conducted in regular consultation with the instructor. Prereq: Consent of instructor.

**ACC 624 ACCOUNTAMETRICS.** (3)
A study of the techniques and methods available to measure and evaluate the response of sub-systems to stimuli within the total systems concept. Both the analytical and computer simulation approaches are used to displace uncertainty associated with typical business problems in which the data are generated by the accounting system. A knowledge of FORTRAN is advisable. Prereq: Six hours of accounting and ECO 391 or equivalent.

**ACC 627 CORPORATE TAXATION.** (3)
A detailed study of the income taxation of corporations and shareholders. Prereq: ACC 417G or consent of instructor.

**ACC 628 FINANCIAL/MANAGERIAL ACCOUNTING.** (3)
A study of the application of accounting information and services in the recognition or solution of management problems in business. Prereq: Graduate standing, ACC 202 or its equivalent, MA 123 or its equivalent.

**ACC 637 TAXATION OF PARTNERSHIPS AND PARTNERS.** (3)
A detailed study of the income taxation of partnerships and partners. Prereq: ACC 417G or consent of instructor.

**ACC 647 TAXATION OF ESTATES, GIFTS, AND TRUSTS.** (3)
A detailed study of the income taxation of estates, gifts, and trusts. This course will include both the estate and gift transfer taxes as well as the income taxation of trusts under Subchapter J. Prereq: ACC 417G or consent of instructor.

**ACC 700 SEMINAR IN ACCOUNTANCY.** (3)
An overview of accounting and accounting research, team-taught by the graduate faculty. Current developments are addressed, to include research issues in the functional areas of attestation, decision-making, financial and not-for-profit reporting, systems applications, and taxation. Prereq: Doctoral student status.

**ACC 701 SEMINAR IN FINANCIAL ACCOUNTING.** (3)
A study of financial accounting history and contemporary problems in financial accounting. Prereq: Consent of instructor.

**ACC 708 SEMINAR IN MANAGEMENT ACCOUNTING.** (3)
A study of contemporary literature in the field of management accounting, with emphasis on the need for additional research into uses of techniques and concepts. Prereq: Consent of instructor.

**ACC 795 INDEPENDENT STUDY IN ACCOUNTING.** (1-6)
Designed for students undertaking special studies to be conducted in regular consultation with instructor. Class hours by appointment. Prereq: Consent of instructor.

## AEC Agricultural Economics

**AEC 201 INTRODUCTION TO FARM AND NATURAL RESOURCE FINANCE.** (3)
This course provides an introduction to basic concepts used in financial analysis that can be applied to farms and small agriculturally-related businesses. It provides an overview of basic financial statements and their role in business planning. These tools will be applied to case studies of farms, agribusiness, and forestry firms. Prereq: MA 123 and ECO 201 or ECO 202 or GEN 101.

**AEC 300 TOPICS IN AGRICULTURAL ECONOMICS (Subtitle required).** (1-3)
Study in special topics in agricultural economics. May be repeated under a different subtitle to a maximum of 6 credits. A course may be offered twice under a given subtitle. Lecture, 1-3 hours; laboratory, 0-6 hours per week. Prereq: GEN 101, ECO 201.

**AEC 302 AGRICULTURAL MANAGEMENT PRINCIPLES.** (4)
A comprehensive study of economic principles and management tools useful in farm and agribusiness decision making. Utilizes a systems approach to the planning, implementation and control of the agricultural business. Specific attention to application of management and decision theory, economic principles used in decision making, and risk management strategies. Emphasis on planning the future course of the business, acquiring and managing the necessary resources, and establishing physical and financial control over the business. Lab incorporates microeconomic applications of management principles developed in lectures. Prereq: GEN 101, ECO 201.

**AEC 303 MICROECONOMIC CONCEPTS IN AGRICULTURAL ECONOMICS.** (3)
Emphasis on the development of theoretical models of production and consumption economics and application of these models to problems. The importance of concepts of marginality to managers and consumers is emphasized. Role of risk and uncertainty in resource allocation is outlined. Prereq: GEN 101, ECO 201, MA 123 or 113.

**AEC 304 MACROECONOMIC CONCEPTS IN AGRICULTURAL ECONOMICS.** (3)
This course addresses the concern that U.S. farmers and the food industry are increasingly affected by macroeconomic forces and general conditions in the national economy. Interdependencies between agriculture, farm size, rural economic well-being and key macroeconomic variables including interest rates, foreign exchange rates and the rate of inflation will be examined. Prereq: GEN 101, ECO 202.

**AEC 305 FOOD AND AGRICULTURAL MARKETING PRINCIPLES.** (3)
Analysis of the market's role in determining prices and coordinating productive activities in the food and agricultural systems. Prereq: GEN 101, ECO 201.

**AEC 309 INTERNATIONAL AGRICULTURE, WORLD FOOD NEEDS AND U.S. TRADE IN AGRICULTURAL PRODUCTS.** (3)
Present and projected world food/population balance by geographic regions; food production and world trade in agricultural products with an emphasis upon the implications for U.S. agriculture; an introduction to agricultural development problems of the less developed nations of Latin America, Africa, and Asia. Prereq: GEN 101 or equivalent.

**AEC 311 LIVESTOCK AND MEAT MARKETING.** (1)
Provides students with a comprehensive look at the unique characteristics of the marketing system for livestock. Problems in both the feeder animal sector and the fed animal sector will be considered. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

**AEC 312 DAIRY MARKETING.** (1)
A comprehensive analysis of the unique characteristics of the marketing system for milk and milk products with emphasis on pricing at the farm level, the role of producer cooperatives and government policy and regulations. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

**AEC 313 TOBACCO MARKETING.** (1)
Analysis of the structure of the production and marketing system for tobacco including institutions and public regulation. Application of marketing methods and principles to tobacco. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

**AEC 314 GRAIN MARKETING.** (1)
Study of production and utilization of grain by areas of the world, the marketing systems for grain, and the application of economic and marketing principles to the pricing and movement of grain. Prereq: AEC 301, AEC 321.

**AEC 315 FARM SUPPLY MARKETING.** (1)
A comprehensive analysis of the unique characteristics of the marketing system for farm supplies. Special attention is given to the structure of national and local markets, competitive behavior and pricing strategies, product quality and labeling, and logistics characteristics of various product lines. Prereq: AEC 301.

**AEC 321 AGRICULTURAL FUTURES MARKETS.** (3)
The mechanics, theory, and practical application of hedging as related to agricultural commodities. The historical development of futures markets, functions of the futures markets, and the role of the speculator will also be explored. Prereq: AEC 301.

**AEC 324 AGRICULTURAL LAW.** (3)
A study of legislation, administrative regulations, constitutions and court cases that have economic ramifications on agricultural and rural life. Prereq: GEN 101.

**AEC 341 AGRICULTURAL CREDIT INSTITUTIONS.** (1)
Designed to teach applications of key segments of macro agricultural finance. The course primarily examines credit needs in agriculture and the institutions that are capable of supplying agricultural credit. Various credit instruments are identified and examined. Prereq: GEN 101.

**AEC 399 EXPERIENTIAL LEARNING IN AGRICULTURAL ECONOMICS.** (1-6)
A field or community-based experience in the application of economics to agricultural and rural problems. May be repeated; a maximum of six credits allowed. Pass-fail only. Prereq: GEN 101, nine hours in agricultural economics or economics, and permission of instructor, department chairperson, and completion of learning agreement prior to registration.

**AEC 408 FARM ACCOUNTING AND BUSINESS ANALYSIS.** (3)
Concentrates on designing a farm business financial record system and recording data pertinent to both internal and external users of financial information. Asset valuation and income determination are stressed and related to economic concepts of farm management. Prereq: AEC 302 or AEC 322; ACC 201.

**AEC 410 INTERNATIONAL TRADE AND AGRICULTURAL MARKETING.** (3)
A study of institutional, economic and cultural factors that influence aggregate agricultural trade and exports of individual agribusinesses. Macro issues of agricultural trade policies are examined along with elements of international marketing for agricultural products. Prereq: AEC 301.

**AEC 422 AGRIBUSINESS MANAGEMENT.** (3)
Examines and analyzes decision-making tools and problem-solving techniques available to agribusiness managers. Provides learning experience in addressing contemporary economic, marketing and management issues through case study analyses, selected readings and computerized business simulations. Prereq: AEC 301 and MGT 301.

**AEC 425 TIMBER MANAGEMENT.** (4)
The principles of sustained yield timber management, organization of the forest area, management objectives, timber valuation, regulation of the cut, and timber management plans. Lecture, three hours; laboratory, two hours. Prereq: MA 162, FOR 201, and Summer Camp (FOR 375, 376, 377, 378, and 379), or consent of instructor. (Same as FOR 425.)

**AEC 441G AGRICULTURAL FINANCIAL MANAGEMENT.** (3)
Applies micro agricultural finance to farm and other agricultural business firms. Reviews elementary mathematics of finance and the objectives of financial management. Uses financial statements, cash flow analysis, financial leverage and other elements in applying the theory of capital investment for making management decisions. Prereq: ACC 201, ECO 201, FIN 300.

**AEC 445G INTRODUCTION TO RESOURCE AND ENVIRONMENTAL ECONOMICS.** (3)
Economic analysis of the problems of assuring resource availability and environmental quality. Theoretical concepts and empirical tools for evaluating resource and environmental policy. Prereq: ECO 201, or consent of instructor.

**AEC 471 INTERNATIONAL ECONOMICS.** (3)
The basic exchange model is the most important topic in this course. The exchange model is used to illustrate the gains from trade, the role of opportunity costs, and the properties of relative prices. Production considerations, the concept of comparative advantage, and the resulting factor rewards are introduced. Trade distortions are introduced and studied from the point of view of protectionism and its consequences. Fixed and flexible exchange rates and the concept of balance of payments are also covered. Prereq: ECO 202 or equivalent. (Same as ECO 471.)

**AEC 479 PUBLIC ECONOMICS.** (3)
An application of economic analysis to the study of the role of government. Emphasis is on the reasons for and the effects of government intervention in the economy. Topics covered include: market failure, public goods and externalities, welfare policy, voting and public choice, taxation, public debt and cost-benefit analysis. Prereq: ECO 202 or equivalent. (Same as ECO 479.)

**AEC 483 REGIONAL ECONOMICS.** (3)
This course presents an economic approach to the study of regions. The emphasis is on the role of spatial relationships in economic activity. Topics considered include market area analysis, location theory, economic base and input-output analysis as well as regional economic development. Prereq: ECO 202.

**AEC 501 AGRICULTURAL MARKET ORGANIZATION AND PERFORMANCE.** (3)
Analysis of the effects of the changing structure and organization of agribusiness industries on competitive behavior of firms and performance of the marketing system. Public regulation of agribusiness industries will be discussed and the effect on the market system analyzed. Prereq: AEC 301.

**AEC 502 ADVANCED FARM MANAGEMENT.** (3)
Integration of production and business management principles through planning and analysis for application in the management of commercial farms. The case farm approach is utilized for the application of management techniques. Prereq: AEC 302.

**AEC 516 RURAL REAL ESTATE APPRAISAL.** (3)
The theory, principles and procedures that a professional appraiser uses in appraising the fair market value of rural real estate. Field trips are included to apply procedures and techniques. As three to four field trips are taken, no courses should be scheduled after this one on Tuesday and Thursday. Prereq: AEC 302 or consent of instructor.

**AEC 522 COOPERATIVES IN AGRIBUSINESS.** (3)
An analysis of the major types of management problems faced by the agribusiness cooperative firms. Emphasis is given to alternative solutions influencing business policy decisions. Exposure to actual management problems is provided. Prereq: AEC 301; AEC 322 or MGT 301.

**AEC 531 AGRICULTURAL PRICE ANALYSIS.** (3)
Price behavior of agricultural products and inputs including factors affecting supply and demand for individual products, supply-price relationships and the relationship of agricultural prices to the general price level. Prereq: AEC 301 and STA 291.

**AEC 532 AGRICULTURAL AND FOOD POLICY.** (3)
This course surveys a variety of current public policies that influence the agricultural and rural economies. Students are exposed to the conflicting views of those concerned with food and agricultural policy issues in an international economy. Economic principles are used to evaluate alternatives in terms of the general welfare of society. Prereq: AEC 301.

**AEC 580 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS.** (1-3)
Directed independent study of a selected problem. May be repeated to a maximum of six credits. Prereq: Consent of instructor and chairperson of department.

**AEC 590 INTRODUCTION TO QUANTITATIVE ECONOMICS I.** (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 488G; MA 113; or consent of instructor. (Same as ECO 590.)

**AEC 606 ADVANCED AGRICULTURAL MARKETING.** (3)
A critical examination of objectives and results of various types of research in market organization, marketing functions, price analysis, markets over time, space and form, market information, commodity promotion programs, quality standards, and macroeconomic linkages to marketing. Prereq or concur: AEC 590 and ECO 660.

**AEC 610 INTERNATIONAL TRADE IN AGRICULTURAL PRODUCTS.** (3)
This course analytically examines current empirical research in the area of agricultural trade. Prereq: ECO 660, AEC 624 and ECO 671.

**AEC 620 ADVANCED PRODUCTION ECONOMICS I.** (3)
An advanced treatment of production economics with emphasis on flexible product and factor price situations, factor demand functions, multiple product production, and poly-periodic production theory. Prereq: ECO 660.

**AEC 621 ADVANCED PRODUCTION ECONOMICS II.** (3)
A continuation of AEC 620 with emphasis on production function estimation, aggregate production and supply relations, factor distribution theories and implications for agricultural policies and programs. Prereq: AEC 620.

**AEC 624 ADVANCED QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS.** (3)
This course uses statistical tools to model agricultural and economic systems. Subjects covered include: (1) the classical linear regression model, (2) statistical hypotheses tests, and (3) estimation techniques for single and simultaneous equation models. Prereq: ECO 488G and STA 570.

**AEC 626 AGRICULTURE AND ECONOMIC DEVELOPMENT.** (3)
Analytical consideration of the role of agriculture in economic development in relation to overall development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 473G or consent of instructor. (Same as ECO 674.)

**AEC 627 PROJECT ANALYSIS FOR RURAL DEVELOPMENT.** (3)
A study of the theory and practice of planning and analyzing public sector investments in the agricultural sector in the third world. Among the methods covered are economic analysis, financial analysis, PERT and critical path analysis. Case studies are utilized to teach methods. Prereq: ECO 660.

**AEC 640 ADVANCED AGRICULTURAL POLICY.** (3)
This course focuses on development of a framework to analyze alternate paradigms of the political economy. The framework focuses on the role of institutions that modify behavior of decision makers. Agricultural and food policies are evaluated in terms of the efficient use of resources and the general welfare of society. Prereq: ECO 660.

**AEC 645 NATURAL RESOURCE ECONOMICS.** (3)
Economic analysis of natural resource use and environmental issues. Discussion of criteria for public decision making, welfare economics, market failure, benefit-cost analysis, and benefit estimation, as applied to natural resources and the environment. Prereq: ECO 590 and ECO 660.

**AEC 646 INTERTEMPORAL ALLOCATION OF NATURAL RESOURCES.** (3)
This course teaches the application of economic theory to the analysis of solutions for current and prospective natural resource problems. Such understanding will be geared toward fashioning, selecting and implementing planning associated with land, water, air, biological and other natural resources and conservation of the natural environment in serving the needs and desires of citizens. Prereq: ECO 660 and AEC 590.

**AEC 650 ADVANCED AGRICULTURAL PRICES.** (3)
Advanced study of agricultural price behavior by the application of economic theory and statistical analysis. Prereq: AEC 624 and ECO 660.

**AEC 660 RESEARCH METHODS IN AGRICULTURAL ECONOMICS.** (3)
An analytical examination of research methods and techniques used in agricultural economics. Prereq: Consent of instructor.

**AEC 661 PROGRAMMING MODELS IN AGRICULTURAL ECONOMICS.** (3)
A study of some programming models useful in agricultural economics; includes an examination of the structure of the models themselves, economic interpretation of their components and their use in research in agricultural economics. Prereq: MA 416G and either AEC 620 or ECO 660.

**AEC 691 STRUCTURE OF U.S. AGRICULTURE.** (3)
This seminar will analyze the structural transformation of U.S. agriculture in the 19th and 20th centuries in the context of sociological theory. Emphasis is given to key historical transitions, changing social relations of production and state policy. Such emphases provide a framework for understanding the historical roots and future prospects for the socioeconomic problems confronting contemporary U.S. agriculture. Prereq: Graduate standing in sociology/agricultural economics or consent of instructor. (Same as SOC 691.)

**AEC 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**AEC 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**AEC 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours. Prereq: Consent of adviser and chairperson of department.

**AEC 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely. Prereq: Consent of adviser and chairperson of department.

**AEC 780 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS.** (1-3)
Open to graduate students who have the necessary training and ability to conduct research on a selected problem. May be repeated three times for a total of nine credits. Prereq: Consent of instructor and departmental chairperson.

**AEC 796 SEMINAR (Subtitle required).** (3)
An extended original investigation of a specific topic designed to give students experience in methods of research and an intensive study of a particular subject in the field of agricultural economics. May be repeated to a maximum of six credits under different subtitles. Prereq: Ph.D. applicant or candidate.

## AED Agricultural Education

***AED 210 INTRODUCTION TO VOCATIONAL EDUCATION.** (3)
The history, status, philosophy, and objectives of vocational education in relation to general education. (Same as HEE 210.)

***AED 362 PRACTICUM IN VOCATIONAL EDUCATION, AGRICULTURAL COMMUNICATIONS, AND LEADERSHIP.** (3)
Supervised experiences in schools, businesses and agencies. Required of all Agricultural Education, Communications, Leadership and Home Economics Education majors. Includes observation, participation, experience, field trips, inspection of programs and professional organizations. May be repeated to a maximum of nine credits. Prereq: Junior standing. (Same as AGC/HEE/SOC 362.)

***AED 501 PRACTICUM IN VOCATIONAL EDUCATION.** (1-12)
Planned and supervised practicum in teaching, extension, governmental agencies, etc. Requires the integration of observation skills, development and use of objectives, using instructional strategies, developing effective interpersonal skills, using appropriate communication skills, developing a portfolio, selecting instructional materials, and evaluating instruction. Regularly scheduled seminars included as an integral part of course. May be repeated to a maximum of 12 credits. Prereq or concur: HEE/AED 586 or consent of instructor. (Same as HEE 501.)

***AED 535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION.** (3)
Study is made of philosophy, accepted principles, and legislation affecting programs in vocational education. (Same as HEE 535.)

***AED 580 METHODS OF TEACHING VOCATIONAL EDUCATION I.** (3)
Development of teacher competency in methods of teaching with emphasis on the problem-solving procedure and use of demonstrations, field trips, and audiovisual materials; evaluation of teaching-learning principles, studies of facilities and instructional materials needed in a vocational education program. Prereq: Permission of instructor. (Same as HEE 580.)

***AED 586 METHODS IN TEACHING VOCATIONAL EDUCATION II.** (3)
A study of teaching methods, curriculum development, basic skills integration, utilization of resources, working with special needs students, and professional responsibilities of the vocational education teacher. Prereq: Consent of instructor. (Same as HEE 586.)

***AED 590 PROBLEMS IN VOCATIONAL EDUCATION.** (3)
Problems in teaching vocational education for high school students and adults. May be repeated twice for a maximum of nine credits. Prereq: Permission of instructor. (Same as HEE 590.)

***AED 670 ADVANCED METHODS IN TEACHING VOCATIONAL EDUCATION.** (3)
The principles of method applied to teaching in the field of vocational education. Prereq: Experience in teaching vocational education. (Same as HEE 670.)

***AED 671 YOUTH ORGANIZATIONS IN VOCATIONAL EDUCATION.** (3)
A study of the underlying philosophy and principles for organizing and advising youth organizations in vocational education. Emphasis to be placed on activities which will enrich and motivate the instructional programs and which will develop leadership, cooperation and citizenship. (Same as HEE 671.)

***AED 672 CURRICULUM CONSTRUCTION IN VOCATIONAL EDUCATION.** (3)
A study of the principles of curriculum building with an emphasis on development of curriculum in home economics and agriculture education from middle school to adult levels. (Same as HEE 672.)

***AED 678 SELECTING TEACHING MATERIALS.** (3)
Selection and organization of specific references and other instructional materials to be used in teaching an area of vocational education. (Same as HEE 678.)

***AED 679 ADULT EDUCATION IN VOCATIONAL EDUCATION.** (3)
Preparation for teaching adult classes in vocational education including organization of classes, development of curriculum, and methods of teaching. (Same as HEE 679.)

***AED 680 DIRECTING EXPERIENCE PROGRAMS IN VOCATIONAL EDUCATION.** (3)
Directing experience programs including projects, activities, internships, and co-op education. Such areas as setting standards, planning, supervision, records, and evaluation will be discussed. (Same as HEE 680.)

***AED 684 CURRENT TRENDS IN VOCATIONAL EDUCATION.** (3)
Class work in current trends and significant developments in vocational education. May be repeated to a maximum of nine credits. (Same as HEE 684.)

***AED 686 EVALUATION IN VOCATIONAL EDUCATION.** (3)
A course to acquaint teachers of vocational education with techniques used in measuring attainment in vocational education in middle and high school, college, and adult education. Prereq: Teaching experience. (Same as HEE 686.)

***AED 694 THE ADMINISTRATION OF VOCATIONAL EDUCATION.** (3)
A course designed for superintendents, high school principals, and other administrators. Its purpose is to train for administering and supervising vocational education in schools. (Same as HEE 694.)

***AED 695 SPECIAL PROBLEMS IN VOCATIONAL EDUCATION.** (3)
An independent work course for students interested in vocational education. Students make individual investigations and report on special problems. (Same as HEE 695.)

***AED 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours. (Same as HEE 768.)

***AED 779 SEMINAR IN VOCATIONAL EDUCATION.** (1-3)
A critical study of selected problems in vocational education. The course is open only to students with experience in the field. May be repeated to a maximum of nine credits. (Same as HEE 779.)

***AED 789 INDEPENDENT WORK IN VOCATIONAL EDUCATION.** (1-3)
An independent work course for students who have completed a minimum of 12 semester hours of graduate work, one-half of which must have been in vocational education. May be repeated to a maximum of nine credits. (Same as HEE 789.)

***AED 799 RESEARCH IN VOCATIONAL EDUCATION.** (1-3)
Individual research of importance to vocational education. May be repeated to a maximum of nine credits. (Same as HEE 799.)

## AEN Agricultural Engineering

**AEN 102 INTRODUCTION TO BIOSYSTEMS ENGINEERING.** (1)
An introduction to the engineering of food and fibers, production, and processing systems. Professionalism and the engineering approach to problem solving will be emphasized.

**AEN 103 BASIC PRINCIPLES OF SURVEYING.** (2)
General use of surveying equipment, development of topographic maps, layout of engineering systems, earthwork computations, and introduction to boundary surveys for Agriculture students. This course is not available for credit to persons who have received credit in another introductory surveying course. Lecture, one hour; laboratory, three hours. Prereq: A course in trigonometry, enrollment in the College of Agriculture and/or consent of instructor.

**AEN 202 BIOSYSTEMS ENGINEERING PROBLEMS.** (2)
Introduction to biosystems engineering; engineering problem solving; computer applications and structured programming; probability; statistics. Emphasis on application of these skills to biosystems applications. Lecture, two hours; laboratory, one hour per week. Prereq: MA 113 and sophomore standing; prereq or coreq: CS 221.

**AEN 220 FARM TRACTORS AND ENGINES.** (3)
Principles of selection and application of farm tractors and engines. Operating principles of internal combustion engines including carburetion, fuel injection, ignition, and lubrication. Power transmission application and efficiency are considered. Lecture, two hours per week; laboratory, two hours per week.

**AEN 252 FARM SHOP.** (3)
Wood and metal work, including blueprint reading, oxyacetylene and arc welding, power woodworking tools, soldering and pipe work. Lecture, one hour; laboratory, four hours. Prereq: Major in agricultural education or consent of instructor.

**AEN 301 MICROELECTRONIC APPLICATIONS IN BIOSYSTEMS ENGINEERING.** (2)
An introduction to the use of digital electronics and integrated circuits in solving agricultural engineering problems. Digital circuits, microprocessor concepts, computer interfacing, transducers, signal conditioning and control applications are discussed. Lecture, one hour; laboratory, two hours per week. Prereq: EE 307 or consent of instructor.

**AEN 302 ANALYTICAL AND NUMERICAL METHODS FOR BIOSYSTEMS.** (3)
An introduction to engineering problems encountered in agricultural and biological engineering systems. Introduction of psychrometries; emphasis is on the solution of case studies using computer simulation and analysis, statistical methods and numerical techniques. Topics of current relevance used and case studies. Prereq: Junior standing, CS 221; prereq or concur: MA 214.

**AEN 308 ENGINEERING PROPERTIES OF BIOLOGICAL MATERIALS.** (3)
Physical properties of agricultural materials and food products as related to engineering design for handling, storage, and processing. Prereq: EM 302, EM 303 and engineering standing.

**AEN 340 PRINCIPLES OF FOOD ENGINEERING.** (4)
The functional requirements and principles of operation of systems for the handling and processing of food and agricultural products. Lecture, three hours; laboratory, two hours per week. Prereq: Junior standing and completion of mathematics requirement in Food Science curriculum.

**AEN 343 FLUID MECHANICS OF BIOSYSTEMS.** (3)
Principles of fluid dynamics as applied to biosystems; Newtonian and non-Newtonian fluid flow processes; theory and application of pumps and low pressure fans; flow measuring devices and techniques. Prereq: ME 330 or CE 341 and engineering standing.

**AEN 345 CROP DRYING AND PROCESSING.** (3)
Principles of crop drying and storage; planning grain handling, storage, drying and processing facilities; materials handling and feed processing equipment; electrical considerations in farmstead planning; selection and application of electric motors and controls for the farmstead. Prereq: Junior standing or consent of instructor.

**AEN 400 SENIOR SEMINAR IN AGRICULTURAL ENGINEERING.** (1)
A course for senior students in agricultural engineering with emphasis on oral communications skills. Students will do literature searches on topics related to the agricultural engineering profession and present oral and written reports. Prereq: COM 199 and senior standing in agricultural engineering.

**AEN 401 DESIGN IN AGRICULTURAL ENGINEERING.** (4)
A course for senior students in agricultural engineering with emphasis on the engineering design process and effective oral communication. Creative involvement of students is required in solving open-ended problems where previously learned engineering principles culminate to produce actual designs which are appropriate to the profession of agricultural engineering. Lecture, two hours per week; laboratory, four hours per week. Prereq: Senior standing in agricultural engineering program and consent of instructor.

**AEN 402 DYNAMICS OF BIOLOGICAL SYSTEMS.** (3)
Energy capture and flow in biological systems; application of mathematical and simulation techniques to the analysis of biosystems. Topics include: study of the principle methods of energy capture in living organisms, population dynamics of living systems, energy flows in the biosphere, cellular chemical reactions, reaction kinetics, absorption and transfer processes, and growth dynamics. Topics are examined and modeled from an engineering standpoint. Prereq: ME 220 or equivalent or consent of instructor.

**AEN 406G PHYSICS OF PLANT AND ANIMAL ENVIRONMENT.** (3)
A study of the thermal, moisture, light and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture, two hours; laboratory, two hours. Prereq: ME 325, engineering standing or consent of instructor.

**AEN 407 ECONOMIC ANALYSIS OF BIOSYSTEMS.** (2)
The financial and managerial aspects of biosystems in evaluating design alternatives to biosystems. Typical topics included are: concepts of present and future value, techniques of managerial economics, and biosystem design analysis in the evaluation of alternatives. Retirement/replacement policies and risk analysis. Prereq: Engineering standing.

**AEN 417G DESIGN OF MACHINE SYSTEMS.** (3)
A study of the operational characteristics and design features associated with production and processing equipment for food and fiber products and an introduction to conceptualization, analysis and design of these systems. Lecture, two hours; laboratory, two hours per week. Prereq: EM 313, ME 330, engineering standing or consent of instructor.

**AEN 435G WASTE MANAGEMENT FOR BIOSYSTEMS.** (3)
A study of the characteristics; treatment and utilization principles; and analysis and design of systems for managing waste from the production and processing of food and fiber. Lecture, two hours; laboratory, three hours per week. Prereq: MA 214 and BIO 108.

**AEN 438G FUNDAMENTALS OF GROUNDWATER HYDROLOGY.** (3)
The first course in the physics of saturated flow in porous media. Topics include groundwater occurrence, Darcian flow, well hydraulics, flow nets and layered systems flow. The basic concepts of pollutant movement and unsaturated flow are introduced and case studies are analyzed. Prereq: ME 330 or CE 341 or consent of instructor.

**AEN 450 SPECIAL PROBLEMS.** (1-3)
An intensive study of some phases of agricultural engineering in which the student is particularly interested. Approval of the instructor is required. May be repeated to a maximum of six credits.

**AEN 480G HEATING, VENTILATING AND AIR-CONDITIONING.** (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. Principles and applications of building energy requirements and thermal comfort criteria. Prereq: ME 325 and engineering standing or consent of instructor. (Same as ME 480G.)

**AEN 505 ENGINEERING ANALYSIS.** (3)
A study of the professional method of dealing with engineering problems and the application of this method to problems encountered in the agricultural industry. Lecture, two hours; laboratory, two hours. Prereq: Engineering standing or consent of instructor.

**AEN 513 SOIL DYNAMICS IN TILLAGE AND TRACTION.** (3)
A course for advanced undergraduate and graduate students which presents the principles of dynamic soil-machine interaction. The performance characteristics of tractive devices are presented along with the corresponding soil compliance. Soil response to mechanical disturbance or tillage is also presented. Lecture, two hours; laboratory, two hours per week. Prereq: EM 313, AEN 417G.

**AEN 515 FLUID POWER SYSTEMS.** (3)
Analysis and design of fluid power systems used in agricultural, industrial and processing equipment. Selected topics to include: positive displacement components, control devices, actuators, fluid transmission and system dynamics. Lecture, two hours; laboratory, two hours per week. Prereq: ME 330, ME 340 and engineering standing or consent of the instructor.

***AEN 536 FLUVIAL HYDRAULICS.** (3)
Rainfall physics, principles of erosion on upland areas and construction sites, stable channel design in alluvial material, mechanics of sediment transport, river mechanics, reservoir sedimentation. Prereq: CE 461G, ME 330 and engineering standing. (Same as CE 546.)

**AEN 537 IRRIGATION AND DRAINAGE ENGINEERING.** (3)
Planning and design of irrigation system; sprinkler, traveling gun, center pivot, trickle, subirrigation and residential and commercial irrigating; pumps; water quality treatment and supply; ponds and wells; principles of water movement and plant-soil relationships; surface and subsurface drainage. Prereq: ME 330 or CE 341 or consent of instructor.

**AEN 545 ENGINEERING HYDRAULICS.** (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Prereq: CE 341, CE 441 and engineering standing. (Same as CE 549.)

**AEN 549 FOOD AND BIOPROCESS ENGINEERING.** (3)
An analysis of the most common unit operations utilized in the processing of food products. The principles of heat and mass transfer and reaction kinetics associated with processing operations will be used in defining process systems for drying, evaporation, refrigeration, freezing, fermentation, etc. Prereq: ME 325 or equivalent.

***AEN 556 SOLID AND HAZARDOUS WASTE MANAGEMENT.** (3)
Study of the generation and management of solid and hazardous wastes. Application of engineering principles to the collection, transport, processing, resource recovery and ultimate disposal of these wastes. Prereq: CE 471G, CE 521 or consent of instructor and engineering standing. (Same as CE 556).

***AEN 569 WATER RESOURCES SYSTEM DESIGN.** (4)
Application of principles of hydrology, hydraulics, and environmental engineering in the planning, design, and analysis of a comprehensive water resource project. Emphasis on basic ideas and their application to the practical design of water supply, distribution, collection and treatment facilities. Written and oral presentation of student projects will be required. Lecture, three hours; laboratory, three hours per week. Prereq: CE 451, 461G, 549 and engineering standing. (Same as CE 569).

**AEN 599 TOPICS IN AGRICULTURAL ENGINEERING.** (2-3)
A detailed investigation of a topic of current significance in agricultural engineering such as: design of small earth dams, vacuum dehydration systems, small particle mechanics, environmental control in green houses, sprinkler irrigation, energy conversion in agriculture, bio-simulation. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the AEN 599 number. Prereq: Variable; given when topic identified.

**AEN 618 ADVANCED PLANT, SOIL AND MACHINERY RELATIONSHIPS.** (3)
A consideration of fundamental concepts of energy and materials in the identification and mensuration of parameters needed in the development of new machines for agriculture. Lecture, two hours; laboratory, two hours. Prereq: AEN 417G and 505.

**AEN 638 GROUNDWATER HYDROLOGY.** (3)
The equations of saturated and unsaturated groundwater flow, the formulation of boundary value problems, and some analytical methods of solution. Solutions using Fourier series, solutions involving the Fourier transform and the Fourier sine and cosine transforms. The Boltzman transformation, development of the Philip solution for horizontal and vertical flow. Mathematical statement of the saturated and unsaturated groundwater pollution problem and some analytical methods of solution. The semigroup solution of the resulting evolution equation, examples of solutions using the Laplace transform and the Fourier transform, more complex solutions in two-dimensional and three-dimensional domains, solutions for distributed sources in time and in space, solutions for time-varied boundary conditions. Prereq: MA 214, CE 461G or equivalent. (Same as CE 660).

**AEN 642 OPEN CHANNEL FLOW.** (3)
The hydraulics of free surface flow including such topics as uniform flow, varied flow, unsteady flow, the hydraulic jump flow transitions, spillways and channel delivery. Prereq: CE 341. (Same as CE 642).

**AEN 648 ENERGY AND MASS TRANSFER IN AGRICULTURAL PROCESSING.** (3)
A comprehensive and in-depth study of the principles of energy and mass transfer as they apply to the processing of agricultural and biological materials. Prereq: AEN 548 or consent of instructor.

**AEN 653 WATER QUALITY IN SURFACE WATERS.** (3)
Water quality requirements for various beneficial uses. Analysis of dispersion, advection, evaporation, natural aeration, biological oxidation and photosynthesis; their effects on the physical, chemical and biological quality of waters in streams, lakes, reservoirs, estuaries and other surface waters. Eutrophication. Prereq: MA 214 and CE 451, or consent of instructor. (Same as CE 653).

**AEN 658 INSTRUMENTATION FOR ENGINEERING RESEARCH.** (3)
Instrumentation and measuring system characteristics; transducers for engineering measurements; and data acquisition and analysis. Lecture, two hours; laboratory, two hours per week. Prereq: Consent of instructor.

**AEN 660 SIMILITUDE IN ENGINEERING.** (3)
An advanced approach to engineering problems through the theory of similitude and its application to models. The use of geometrically similar, distorted and dissimilar models will be discussed. Prereq: Graduate standing.

**†AEN 661 ADVANCED HYDROLOGY** (3)

**AEN 665 WATER RESOURCES SYSTEMS.** (3)
Application of systems analysis, mathematic modeling, and optimization in water resources management and design. Solution of engineering problems found in water supply, water quality, urban drainage, and river basin development and management by use of linear, nonlinear, and dynamic programming models. Prereq or concur: CE 421 and CE 569 or consent of instructor. (Same as CE 665).

**AEN 667 STORMWATER MODELING.** (3)
Introduction to deterministic and parametric modeling approaches for mathematically simulating stormwater runoff and quality. Emphasis on modeling concepts and model formulation. Analysis of deterministic component models and their linkage. Formulation of existing parametric models. Presentation of methods for parameter optimization and regionalization. Demonstration of linkage between the two approaches with illustrative examples. Prereq: CE 341 and CE 461G, or consent of instructor. (Same as CE 667).

**AEN 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**AEN 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**AEN 750 SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING.** (1-3)
Independent work on selected research problems in one of the various fields of agricultural engineering. Consultation and laboratory by appointment. Prereq: Approval of chairperson of department.

**AEN 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**AEN 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**AEN 775 SEMINAR.** (0)
Weekly meetings with members of the staff for reports and discussions on research and current trends and practices in agricultural engineering. May be repeated twice. One class hour.

**AEN 795 THESIS.** (0)
May be repeated twice.

## AGC Agricultural Education, Communication, Leadership and Home Economics Education

### Leadership and Home Economics Education

**#AGC 320 SURVEY OF AGRICULTURE AND CONSUMER MEDIA.** (3)
An exploration of the social, political, and economic factors that influence how agricultural producers and consumers receive information through the media. In addition, the course will analyze how the general mass media cover agricultural and consumer topics. (Same as HES 320.)

***AGC 362 PRACTICUM IN VOCATIONAL EDUCATION, AGRICULTURAL COMMUNICATIONS, AND LEADERSHIP.** (3)
Supervised experiences in schools, businesses and agencies. Required of all Agricultural Education, Communications, Leadership and Home Economics Education majors. Includes observation, participation, experience, field trips, inspection of programs and professional organizations. May be repeated to a maximum of nine credits. Prereq: Junior standing. (Same as AED/HEE/SOC 362.)

**#AGC 395 SPECIAL PROBLEMS IN AGRICULTURAL COMMUNICATIONS.** (1-3)
Directed independent study of a selected problem in the field of agricultural communications. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**#AGC 399 EXPERIENTIAL LEARNING IN AGRICULTURAL COMMUNICATIONS.** (1-3)
A field-based learning experience, under faculty supervision, in the application of communications techniques to agricultural issues. May be repeated to a maximum of three credits. Offered on a pass/fail basis only. Prereq: Consent of instructor and completion of learning contract.

**#AGC 400 AGRICULTURAL COMMUNICATIONS CAMPAIGNS.** (3)
Exploration of communications campaigns and strategies in the agricultural sector. Students will learn how to plan and enact communications campaigns centered on agricultural issues and audiences.

**#AGC 450 TOPICS IN AGRICULTURAL COMMUNICATIONS (Subtitle required).** (3)
Special topics or experimental courses in agricultural communications. Particular title may be offered twice at most under this course number. Students may not repeat under same title. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**#AGC 490 SEMINAR IN AGRICULTURAL COMMUNICATIONS.** (3)
A capstone course for seniors in agricultural communications. Presentations, research papers, outside speakers, and career guidance will be significant course components. Prereq: AGC 320 and AGC 400 and senior standing; or consent of instructor.

## AGR Agronomy

**AGR 360 GENETICS.** (3)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, molecular, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as ASC/ENT 360.)

***AGR 367 SOIL AND WATER ANALYSIS LABORATORY.** (3)
Introductory laboratory emphasizing fundamental principles in soil science and water quality. Will provide hands-on experience in soil-water research and the written communication of acquired knowledge. Lecture 1.5 hours, laboratory three hours per week. Prereq: PLS 366 or approval of instructor.

**AGR 370 ENVIRONMENT, FOOD PRODUCTION AND SOCIETY IN THE U.S.** (3)
Discussion of the present U.S. agricultural production system in perspective of past and present societal philosophies. Emphasis will be placed on basic biological and chemical principles related to primary production and how these principles may be or have been utilized for improvement of human existence. Included in the discussion will be issues of development of agriculture and civilization, environment and soils, and utilization of natural and produced resources.

**AGR 395 SPECIAL PROBLEMS IN AGRONOMY.** (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of appropriate instructor before registration.

***AGR 399 EXPERIENTIAL LEARNING IN AGRONOMY.** (1-6)
A field-based learning experience in agronomy under the supervision of a faculty member. May be repeated for a maximum of six credits.

***AGR 404 INTEGRATED WEED MANAGEMENT.** (4)
A study of weed management concepts based on the integration of weed biology and ecology data with cultural, biological, and herbicidal control. Lecture, three hours; laboratory, two hours. Prereq: PLS 386.

***AGR 408 TOBACCO.** (3)
History, botany, pathology, entomology, breeding, and culture of tobacco with special emphasis on burley. Prereq: PLS 386 or consent of instructor.

***AGR 412 GRAIN CROPS.** (3)
Study of the grain crops of the world with respect to adaptation, production, management and use. Prereq: PLS 386 or consent of instructor.

**#AGR 450G BIOGEOCHEMISTRY.** (3)
A course emphasizing the physical, chemical, and biochemical make-up of soil/water systems and the information required to predict chemical fate in the environment. Emphasis is placed on the relationships describing mineral solubility, sorption and exchange reactions, redox reactions, volatility, and biochemical cycling. Prereq: CHE 105, 107, 115; two semesters of college biology. (Same as NRC 450G.)

**AGR 460 INTRODUCTION TO MOLECULAR GENETICS.** (2)
Molecular genetics is the study of the biochemical basis of heredity and focuses on the structure and expression of DNA at the molecular and cellular level. The course will provide a detailed understanding of the biochemical events involved in replication, prokaryotic and eukaryotic transcription, and translation of DNA, as well as RNA processing, recombination, and the theoretical underpinnings of genetic engineering. Prereq: AGR 360 or BIO 404G or consent of instructor. (Same as ENT 460.)

**AGR 461 INTRODUCTION TO POPULATION GENETICS.** (2)
This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and micro-organisms), but some theoretical derivations will also be introduced. Prereq: AGR 360 (or equivalent) and one course in probability/statistics. (Same as BIO/ENT/FOR 461.)

***AGR 468G SOIL USE AND MANAGEMENT.** (3)
The application of principles related to soils and their management in planning the utilization of land and associated resources. Lecture and discussion. Prereq: PLS 366 or consent of instructor.

***AGR 470G FERTILIZERS AND SOIL FERTILITY.** (3)
Sources and manufacture of fertilizer materials; soil reaction of elements essential for plant growth; effective use of fertilizers for various soil situations. Prereq: PLS 366 and PLS 386 or consent of instructor.

***AGR 477G LAND TREATMENT OF WASTE** (3)
Resource management with emphasis on principles and methods of soil application of wastes (agricultural, industrial, and municipal). Topics include chemical and biological systems; soil and plant management; development, monitoring, and record keeping. Prereq: PLS 366.

***AGR 501 RECLAMATION OF DISTURBED LAND.** (3)
Development of concepts, principles, and an understanding of the problems associated with restoring the productivity of soils disturbed by surface mining of coal as well as a limited discussion of reclamation of other types of disturbed soils. One all-day field trip is required. Prereq: PLS 366.

**AGR 502 ECOLOGY OF ECONOMIC PLANTS.** (3)
Study of the physical environment (radiation, temperature, precipitation, and evapotranspiration) in which crops are grown and the effect of the environment on crop growth and yield. Both micro- and macro-climatic relationships are considered.

***AGR 510 FORAGE MANAGEMENT AND UTILIZATION.** (4)
Critical study of grassland plants and the biological and physical factors operative in utilization of natural and cultivated grasslands by domestic animals. Lecture, three hours; laboratory, two hours. Prereq: PLS 386, or consent of instructor.

***AGR 515 TURF MANAGEMENT.** (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and PLS 366. (Same as HOR 515.)

***AGR 556 SEED TECHNOLOGY.** (3)
Changes occurring during reproductive development, seed germination and seed deterioration; principles of seed production for forage and grain crops; technical aspects of conditioning, testing, storage and marketing of genetically pure crop seed. Lecture, two hours; laboratory, four hours for 12 weeks. Prereq: PLS 386 or consent of instructor.

**AGR 560 SOIL-PLANT RELATIONSHIPS.** (3)
The soil-plant system with emphasis on the soil as an environment for plant roots; nutrient requirements of plants; and nutrient behavior in soils. Prereq: AGR 470G or equivalent, or consent of instructor.

***AGR 564 FOREST SOILS.** (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Three class hours per week with occasional extended field trips. Prereq: PLS 366 and AGR 367 and consent of instructor. (Same as FOR 564.)

***AGR 566 SOIL MICROBIOLOGY.** (3)
The nature and biochemical activities of soil microflora; their significance in soil genesis and structure and their role in soil fertility. Prereq: PLS 366 or an introductory microbiology course or consent of instructor.

***AGR 567 METHODS IN SOIL MICROBIOLOGY.** (1)
Methods in Soil Microbiology will be a laboratory course dedicated to introducing upper division students to the methods and techniques used by microbiologists and other soil scientists to examine organisms, interactions, and processes in soil systems. Laboratory, three hours per week. Prereq: PLS 366 or introductory microbiology course.

***AGR 573 SOIL MORPHOLOGY AND CLASSIFICATION.** (3)
Study of concepts of soil horizons, soil profiles and soilscapes; morphological, physical, chemical and mineralogical parameters useful in their characterization. Soil forming factors and processes. Basic principles of soil classification. Characterization of selected Kentucky soils and their placement in the modern system; practical field problems in soil identification, characterization and classification. Lecture, two hours; laboratory, three hours per week. Prereq: PLS 366 and AGR 367 or consent of instructor.

***AGR 575 SOIL PHYSICS.** (2)
Physical properties of soils and their relationship to chemical, mineralogical, and biological soil properties and to plant growth. Prereq: PLS 366 and AGR 367 and consent of instructor.

**AGR 576 LABORATORY IN SOIL PHYSICS.** (1)
Laboratory experiences for the purpose of increasing an understanding of the principles of soil physical measurements and their relationships to chemical, mineralogical and biological soil properties. Laboratory, two hours. Prereq: AGR 575 or concurrent.

***AGR 581 CHEMICAL ANALYSIS OF SOILS AND PLANTS.** (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative chemical analysis of soil and plant materials and relation of these analyses to physical, chemical and biological systems. Lecture, one hour; discussion, one hour; laboratory, four hours. Prereq: PLS 366 or equivalent, or consent of instructor.

***AGR 597 SPECIAL TOPICS IN PLANT AND SOIL SCIENCE (Subtitle required).** (1-3)
Special topical or experimental courses in crop science, soil science or related areas of horticulture, or plant physiology for graduate and advanced undergraduate students. Special subtitle required and must be approved by the chair of Agronomy or Horticulture. A particular subtitle may be offered twice under AGR 597. Students may not repeat under the same subtitle. Prereq: Permission of instructor. (Same as HOR 597.)

**AGR 599 SPECIAL PROBLEMS IN AGRONOMY.** (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

**AGR 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS.** (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as BCH/BIO/MI/PPA 601.)

***AGR 602 PRINCIPLES OF YIELD PHYSIOLOGY.** (3)
Critical study of the physiological factors and processes involved in determining economic yield in grain crops. The focus will be on factors operating at the whole plant and plant community level as opposed to physiological processes at the cellular or subcellular level. A logical, analytical description of the process of economic yield production by grain crops will be developed and related to historical changes in crop yields and the potential for increasing yields in the future. Prereq: PLS 386 and BIO 430G or consent of instructor.

**AGR 619 CYTOGENETICS.** (4)
Classical, biochemical and molecular studies of the structure and function of eukaryotic chromosomes. Emphasis is placed on the effects of variation in chromosome type, structure and number on Mendelian genetics and in plant and animal breeding. Lecture, three hours; laboratory, two hours. Prereq: ASC/AGR 360 or BIO 404G. (Same as BIO 619.)

***AGR 620 PLANT MOLECULAR BIOLOGY.** (3)
This course is intended to be a treatment of current concepts of plant molecular biology. It will be a literature-based course, supplemented by handouts and reading lists. The course will deal as much as is possible with topics that are unique to plants. Current aspects of molecular biology that are relevant to the course content will be covered in the first part of the course; however, these lectures will not be a review of topics that should have been retained from introductory genetics and biochemistry courses. Also, they will not be a substitute for a molecular biology course. Prereq: One semester of undergraduate genetics and biochemistry or consent of instructor. (Same as BIO 620.)

**AGR 622 PHYSIOLOGY OF PLANTS I.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant-cell biology, ion transport, water and translocation, respiration and photosynthesis. Prereq: BIO 430G or equivalent or consent of coordinator. Prereq or concur: BCH 501. (Same as BIO/FOR/HOR 622.)

**AGR 623 PHYSIOLOGY OF PLANTS II.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant hormones, an introduction to plant biotechnology, senescence and abscission, stress physiology, phytochrome-photomorphogenesis-phototropism nitrogen and sulfur metabolism.. Prereq: BIO 430G or equivalent, and BCH 501 or consent of course coordinator. (Same as BIO/FOR/HOR 623.)

**AGR 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY.** (3)
Presentation of theory and experimental application of methods for studying plant metabolism and cell biology. Techniques presented include: UV/Vis spectrophotometry, gel electrophoresis, TLC, GLC, HPLC, use of radioisotopes, gel filtration, isolation and characterization of organelles, mRNA isolation. Prereq: BIO 430G or equivalent or consent of instructor. (Same as BIO 630.)

**#AGR 650 SOIL-PLANT RELATIONSHIPS.** (3)
An advanced course on the relationships between media and the root systems of plants growing therein. Prereq: AGR 366, BIO 430G (or equivalent), or consent of instructor. (Same as HOR 650.)

**AGR 657 SEED BIOLOGY.** (3)
Structure, development and function during plant reproductive development and seed ontogeny, including fertilization, embryogeny and endosperm development, seed formation, maturation, germination, dormancy and deterioration. Prereq: AGR 360, BIO 440G or consent of instructor. (Same as HOR 657.)

**AGR 658 ADVANCED WEED SCIENCE.** (4)
Taxonomical, ecological, physiological, chemical and biochemical aspects of cultural and chemical weed control, and herbicide toxicity and selectivity. Prereq: AGR 404 or equivalent, one plant physiology course, one biochemistry course or consent of instructor.

**AGR 660 ADVANCED SOIL BIOLOGY.** (2)
A critical evaluation of the current research status in selected aspects of soil biology. Prereq: AGR 566 or consent of instructor.

**AGR 664 PLANT BREEDING I.** (3)
The application of advanced genetic principles to plant improvement. An in-depth study of existing plant breeding procedures and their applications and consideration of new techniques that can be applied to plant breeding and crop improvement. Prereq: STA 570 or consent of instructor; ASC 562 recommended.

**AGR 671 SOIL CHEMISTRY.** (4)
A study of the chemical characteristics of the soil and of the more important chemical processes in the soil. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 470G, 581; CHE 442G, or consent of instructor.

**AGR 676 QUANTITATIVE INHERITANCE IN PLANT POPULATIONS.** (3)
After a brief review of population genetics theory, the course is divided into two sections which cover methods of estimating genetic variances and selection methods in population improvement. The course will focus on handling and interpretation of actual data sets through data analysis and discussion of current literature. Prereq: STA 570, STA 671, STA 672, and ASC 662. (Same as STA 676.)

**AGR 697 SPECIAL TOPICS IN AGRONOMY (Subtitle required).** (1-3)
Special topical or experimental courses in crop science, soil science or related areas of agronomy for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Agronomy. A particular title may be offered twice at most under AGR 697. Students may not repeat under the same title. May be repeated to a maximum of six hours. Prereq: Will be set by instructor.

**AGR 712 ADVANCED SOIL FERTILITY.** (4)
An integration of the effects of soil, climate, species and management on the nutrition and dry matter accumulation of plants. Lecture, three hours; laboratory, two hours per week. Prereq: AGR 470G or AGR 560 or consent of instructor.

**AGR 721 PEDOGENIC PROCESSES.** (4)
Soil forming factors and their interrelationships as related to development and distribution of soils. Processes of rock and mineral weathering with associated soil formation. Genesis and stability of soil clay minerals. Common methods used for pedological investigations. Basic principles and concepts of the present soil classification system and relationships between pedogenic processes and class criteria employed by soil taxonomy. Lecture, three hours; laboratory, two hours per week. Prereq: AGR 573 or consent of instructor.

**AGR 732 MINERAL NUTRITION OF PLANTS.** (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 430G or equivalent; BCH 501 or consent of instructor. (Same as BIO/HOR 732.)

**AGR 741 CLAY MINERALOGY.** (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, three hours. Prereq: GLY 260 or consent of instructor. (Same as GLY 741.)

**AGR 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**AGR 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of qualifying exams.

**AGR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**AGR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

***AGR 772 PLANT AND SOIL SCIENCE SEMINAR.** (1)
Reports and discussion of problems and research in crops, soils, horticultural science and plant physiology. May be repeated three times for a maximum of four credits. (Same as HOR 772.)

**AGR 773 SEMINAR IN PLANT PHYSIOLOGY.** (1)
Reports and discussions on various topics in plant physiology. May be repeated for a maximum of eight credits. (Same as BIO 773.)

**AGR 799 RESEARCH IN AGRONOMY.** (1-4)
May be repeated for a maximum of 12 credits. Prereq: Consent of instructor.

**Botany Courses**

(May be used for agricultural credit, subject to the approval of adviser.)

**BIO 430G PLANT PHYSIOLOGY.** (3)
See course description under Biology.

**BIO 619 CYTOGENETICS.** (4)
See course description under Biology.

## AHP Allied Health Professions

**AHP 840 ETHICS IN HEALTH PRACTICE.** (2)
A study of selected ethical issues that arise in the practice of health professionals. The health professional's obligations to patients, colleagues, employing institutions, and the community will be considered, and relevant case studies will be analyzed. Prereq: Admission to a CAHP professional program or consent of instructor.

**AHP 841 ALLIED HEALTH PRACTICUM: THE CONTEXT OF HEALTH CARE PRACTICE.** (3)
An interdisciplinary course designed to increase students' ability to interact with health professionals in their practice. Emphasis is on problem-solving, roles/responsibilities of health professionals, communication (interpersonal, team, and interprofessional), and organizational dynamics. Lectures, workshops, and small group and practicum activities, both on and off campus, will be included. Lecture, one hour; laboratory, two hours; and field practicum, four hours per week. Required for Allied Health Professions baccalaureate students. Prereq: Admission to a CAHP professional program or consent of instructor.

## ANT Anthropology

**ANT 120 INTRODUCTION TO PHYSICAL ANTHROPOLOGY.** (3)
Introduction to physical anthropology. Includes topics on human evolution, human "racial" (population) variation, primate behavior, and human genetics. The role of culture in affecting human evolution and human biology is considered.

**ANT 121 INTRODUCTION TO CULTURAL ANTHROPOLOGY.** (3)
The study of variations in beliefs, behaviors and institutions of different peoples. Acquaints the student with a knowledge of how anthropological concepts and knowledge are used to understand and appreciate cultural diversity.

**ANT 130 INTRODUCTION TO COMPARATIVE RELIGION.** (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as RS 130.)

**ANT 160 TRIBAL PEOPLES IN THE MODERN WORLD.** (3)
An introduction to the society, culture, and beliefs of preliterate and tribal peoples, emphasizing both traditional culture patterns and adaptations to the modern world. The course will feature extended description of a single tribal people among whom the instructor has lived and worked.

**ANT 161 THE WORLD OF PEASANTS.** (3)
An introduction to the society, culture, and beliefs of peasant farmers and pastoralists, emphasizing both traditional cultural patterns and adaptations to the modern world. The course will feature extended description of a single peasant people among whom the instructor has lived and worked.

**ANT 215 INTRODUCTION TO ANTHROPOLOGICAL LINGUISTICS.** (3)
Introduction to the nature of language structure and function. Special emphasis on the relationship of language to other cultural systems. Credit will not be given to students who already have credit for either ENG/LIN 211, ENG 414G.

***ANT 221 NATIVE PEOPLE OF NORTH AMERICA.** (3)
A survey of the aboriginal Indian cultures of North America, and of the impact of four centuries of British, French, Spanish, and Russian contact on the Indian communities. The course will include consideration of the status of Indians in present-day North America.

**ANT 232 MODERN HUMAN VARIATION.** (3)
A survey of the principal aspects of human variation within and between populations. Attention is focused upon the concepts of race, racial mixture, human ecology, and human biology.

**ANT 235 FOOD AND CULTURE.** (3)
Examines the way values and behaviors related to food production and consumption are shaped by the physical and cultural environment. Data are drawn from non-Western and Western cultures. Implications of cultural factors for contemporary issues in nutrition are discussed.

**ANT 240 INTRODUCTION TO ARCHAEOLOGY.** (3)
Introduces the theories, techniques, and strategies used by archaeologists to recover and interpret information about past cultures.

**ANT 241 ORIGINS OF OLD WORLD CIVILIZATION.** (3)
A survey of cultural developments in the Old World from the earliest times to the beginning stages of civilization.

**ANT 242 ORIGINS OF NEW WORLD CIVILIZATION.** (3)
Survey of the origin and growth of prehistoric American Indian cultures as revealed by archaeological data. Prereq: ANT 120, 121.

***ANT 255 HUMAN SEXUALITY IN CROSS-CULTURAL PERSPECTIVE.** (3)
The study of human sexuality in evolutionary and cross-cultural perspective; considers gender identity, sexual response, cultural rules and norms concerning sexual behavior and the social organization of sexual behavior. Prereq: ANT 120 or ANT 121 or PSY 100 or SOC 101.

**ANT 312 COMPARATIVE CIVILIZATIONS.** (3)
Comparison of a number of the high civilizations of the ancient, medieval, and modern worlds, including both Old World and New World civilizations. The course will stress both similarities and differences in their historical development and cultural achievements.

**ANT 320 ANDEAN CIVILIZATION.** (3)
A study of the Inca and other pre-Hispanic civilizations of highland South America in terms of their origins, their development, and their material, social, and intellectual achievements.

**ANT 322 AZTEC AND MAYA CIVILIZATION.** (3)
The course provides a study of the Aztec, Maya and related cultures of the New World. It provides a detailed discussion of pre-Columbian subsistence practices, economy, religion and politics by tracing the development of Mesoamerican civilization from its earliest beginnings to the Spanish conquest.

**ANT 323 PEOPLES OF THE PACIFIC ISLANDS.** (3)
A consideration of the various cultures of the Pacific Islands. Attention will be given to both traditional cultural features and the responses of contemporary Pacific societies to economic, political, and social influences from industrialized countries. Prereq: ANT 121.

**ANT 325 PEOPLES OF INNER ASIA.** (3)
A study of the pastoral nomadic societies and the oasis communities of central Russia, China, and Tibet, emphasizing their traditional culture patterns, their role in history, and their adaptation to the modern conditions of Russian and Chinese rule.

**ANT 326 PEOPLES OF EAST ASIA.** (3)
A survey of the societies and cultures of China, Japan, and Korea as revealed through anthropological studies of peasant communities, urban elites, and tribal minorities.

**ANT 327 CIVILIZATION AND CULTURE OF INDIA.** (3)
Considers the content and interrelationships between India's religious and philosophical tradition and the structure and organization of rural village life in historic, demographic and geographic context.

**ANT 332 HUMAN EVOLUTION.** (3)
Basic concepts and theory of evolution will be reviewed and applied to the study of fossil man. The evidence for the evolution of man and his primate relatives will be studied, with attention paid to alternate interpretations of the data. Prereq: ANT 120 or BIO 150.

**ANT 338 PEOPLES OF THE NEAR EAST.** (3)
A survey of past and present cultural adaptations in the Near East and North Africa, stressing the interplay of different ethnic and religious groups and the relationships between nomads, peasant farmers, and town dwellers.

**ANT 350 TOPICS IN ANTHROPOLOGY (Subtitle required).** (3)
Discussion, reading and writing focusing on specific topics in anthropology. May be repeated to a maximum of nine credits under different subtitle. Prereq: ANT 120 or ANT 121.

**ANT 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE.** (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as FAM/SOC/SW 354.)

**ANT 399 FIELD BASED/COMMUNITY BASED EDUCATION IN ANTHROPOLOGY.** (1-15)
A community-based or field-based experience in Anthropology under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Permission of instructor and departmental chairperson; completion of departmental learning agreement.

**ANT 401 GENDER ROLES IN CROSS-CULTURAL PERSPECTIVE.** (3)
Explores the theoretical and substantive basis for contemporary thinking about gender from an anthropological perspective. Gender content is explored in several cultures representing all levels of sociocultural complexity. Prereq: ANT 121 or consent of instructor.

**ANT 420 CONTEMPORARY LATIN AMERICAN CULTURES.** (3)
Detailed survey of societies and cultures of contemporary Latin America, utilizing contributions from anthropological research. Prereq: Introductory social science course.

**ANT 428G CONTEMPORARY CULTURES AND SOCIETIES IN SOUTHEAST ASIA.** (3)
A descriptive and analytical consideration of representative cultures from insular and mainland Southeast Asia in terms of their social, political, economic and religious organization. The history of the cultural contacts of Southeast Asia with India, China, Europe and the Islamic tradition will be discussed. Prereq: ANT 120, 121 or consent of instructor.

**ANT 431G CULTURES AND SOCIETIES OF SUB-SAHARAN AFRICA.** (3)
A survey of indigenous societies and cultures of Africa south of the Sahara, with special attention to their adaptation of colonialism and post-colonial national development. Prereq: ANT 121, or consent of instructor.

**ANT 470G REGIONAL AMERICAN ETHNOGRAPHY.** (3)
The ethnography of a selected North American or South American culture area or group. Both historical and contemporary cultures will be considered, e.g., Appalachia, Northwest Coast Indians, Urban American, etc. May be repeated to a maximum of six credits. Prereq: ANT 121 or consent of instructor.

**ANT 490 INTRODUCTION TO ANTHROPOLOGICAL RESEARCH.** (3)
Introduction to anthropological research methodology and techniques in ethnology, biological anthropology and archaeology.

**ANT 505 ETHNOHISTORY OF THE NATIVE AMERICAN SOUTHEAST.** (3)
This course employs the methodology of ethnohistory, which asks ethnographic questions of historical evidence, to study Native peoples of the Southeastern U.S. from prehistoric times to the present. (Same as HIS 505.)

**ANT 510 HISTORY OF ANTHROPOLOGICAL THEORY.** (3)
Traces the development of anthropological ideas and practices from their origins in the prescientific era through the Renaissance and Enlightenment, and their synthesis into a comparative natural science of man in the 19th and 20th centuries. Particular schools and trends in 20th century anthropology are discussed in detail. Prereq: Nine hours of cultural anthropology or consent of instructor.

**ANT 515 PHONOLOGICAL ANALYSIS.** (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Includes fieldwork on the phonology of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ENG/LIN 515.)

**ANT 516 GRAMMATICAL ANALYSIS.** (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Includes fieldwork on the morphology and syntax of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ENG/LIN 516.)

**ANT 518 LANGUAGE IN CULTURE.** (3)
Survey of problems of language in culture, including man's facility for communication, diversity and use of linguistic codes, semantic systems, paralinguistic phenomena, and applications of historical linguistics to cultural problems. Prereq: A course in linguistics or consent of instructor.

**ANT 519 HISTORICAL LINGUISTICS.** (3)
Language change; reconstruction of linguistic systems, language classification; comparative linguistics; temporal, spatial, and social context of language change. Prereq: ANT 215, ENG/LIN 211, or ENG 414G; or equivalent. (Same as LIN 519.)

**ANT 523 HUMAN VARIATION IN EVOLUTIONARY PERSPECTIVES.** (3)
Examines biological diversity within and between human populations today from the perspective of evolutionary theory and human ecology. Topics covered will include growth and development, diet and nutrition, demography, ecology of disease.

**ANT 525 APPLIED ANTHROPOLOGY.** (3)
Principles of policy research and intervention in cultural anthropology with attention to the theoretical and ethical basis of such research and intervention. Intervention techniques considered include research and development anthropology, action anthropology, community development, community advocacy anthropology and culture brokerage. Prereq: Nine hours of cultural anthropology or consent of instructor.

**ANT 526 PSYCHOLOGICAL ANTHROPOLOGY.** (3)
Explores the interrelations of culture, social structure, and individual psychology. The historical development of theory treating the relationships between culture and personality, as well as recent theory are emphasized. Prereq: Nine hours of cultural anthropology and PSY 100, or consent of instructor.

**ANT 527 CHILDREN AND FAMILY IN APPALACHIA.** (3)
Exploration of family life and the socialization of children in the Appalachian Southern Highlands from both an historical and a contemporary comparative perspective. Prereq: Six hours of social sciences or consent of the instructor. (Same as FAM 550.)

**ANT 528 DIMENSIONS OF AGING.** (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate level standing. (Same as SOC/PSY 528.)

**ANT 529 SURVEY OF MEDICAL ANTHROPOLOGY.** (3)
A cross-cultural survey of health, disease, and healing in folk, primitive, and modern pluralistic societies. Biocultural and ethnomedical approaches in medical anthropology. Prereq: Nine hours of anthropology or consent of instructor. (Same as BSC 529.)

**ANT 532 POLITICAL ANTHROPOLOGY.** (3)
The course examines political systems, process, and action in formal and informal arenas. Emphasis is put on cross-cultural variation, and evolutionary processes in political systems in contemporary as well as historical perspectives. Prereq: Nine hours of cultural anthropology or consent of instructor.

**ANT 533 SOCIAL ORGANIZATION.** (3)
Comparative perspectives in social organization in non-western societies. The course examines systems of kinship, marriage, family, community, community organizations and voluntary associations in the ethnographic record as well as theoretical approaches to structure and change. Prereq: Nine hours of cultural anthropology or sociology or consent of instructor. (Same as SOC 533.)

**ANT 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION.** (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: Six hours of social science or consent of instructor. (Same as SOC 534.)

**ANT 538 ECONOMIC ANTHROPOLOGY.** (3)
History of the development of various theoretical approaches to the cross-cultural study of economic systems and inquiry into the relationships existing between economy and the other systems within a society. Prereq: Nine hours of cultural anthropology or consent of instructor.

**ANT 539 AGING IN CROSS-CULTURAL PERSPECTIVE.** (3)
A systematic examination of the ways in which aging and the aged are dealt with in cultures around the world with an emphasis on non-western cultures. Comparative examination of theories of aging in developing and industrial societies. Prereq: Nine hours of cultural anthropology or consent of instructor.

**ANT 541 ARCHAEOLOGICAL METHOD AND THEORY.** (3)
Examines the concepts, aims and methodology of archaeology as a scientific discipline within the social sciences. Attention given to the basic principles and recent advances of archaeological fieldwork and post-field analysis. Prereq: ANT 240 and six hours of cultural anthropology or archaeology courses, or consent of instructor.

**ANT 542 NORTH AMERICAN ARCHAEOLOGY.** (3)
Origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archaeological data. Prereq: ANT 240 and six hours of archaeology or cultural anthropology, or consent of instructor.

**ANT 543 CULTURAL RESOURCE MANAGEMENT.** (3)
Introduction to the theory and practice of culture/resource management as it has developed in the historic preservation movement in the United States. The history of preservation is covered along with the development of the contemporary legal tools. The implications of these for the field evaluation of sites is presented.

**ANT 545 INTRODUCTION TO HISTORICAL ARCHAEOLOGY.** (3)
Historical archaeology applies archaeological methods and techniques to the remains of societies having written histories. The course introduces students to the history and theoretical development of the discipline, and to the variety of the data sources used by historical archaeologists. Particular attention is given to the ways in which historical archaeologists use material culture to address research issues of interest in anthropology, history, and other relevant disciplines.

**ANT 550 SYMBOLS AND CULTURE.** (3)
Examines the way in which symbolic systems create the meanings through which we experience life. The course will explore symbols and symboling behavior from a humanistic perspective, and will present examples of non-Western symbolic systems. Prereq: ANT 121 or consent of instructor.

**ANT 551 BIOARCHAEOLOGY.** (3)
Human osteology (the study of the human skeletal system) within the context of anthropological archaeology. Identification of the bones of the human skeleton with additional information on growth and development, morphological variations, and skeletal responses to biophysical stress (malnutrition, disease, and physical activity patterns). The analysis of human remains from archaeological contexts will be covered in detail.

**ANT 552 PREHISTORIC FOODWAYS.** (3)
This seminar focuses on methodological and theoretical approaches to the study of subsistence practices in prehistoric and historic societies, through analysis of the archaeological record. Students will be introduced to materials and methods in bioarchaeology, archeobotany, zooarchaeology, and to the ethnographic literature on foodways.

**ANT 555 EASTERN NORTH AMERICAN ARCHAEOLOGY.** (3)
Detailed analysis of prehistoric cultures of eastern United States with emphasis on interpretation of prehistory in Ohio River Valley. Prereq: ANT 120, 121, and 442G or consent of instructor. Prereq: ANT 240 and six hours of archaeology or cultural anthropology, or consent of instructor.

**ANT 580 TOPICS IN ANTHROPOLOGY.** (3)
Selected topics of theoretical or methodological importance in anthropology, with special attention to topics of contemporary relevance. Refer to Schedule of Classes for topics. May be repeated to a maximum of six credits.

**ANT 581 INDEPENDENT WORK IN ANTHROPOLOGY.** (1-4)
May be repeated three times to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

**ANT 582 SENIOR INTEGRATIVE SEMINAR.** (3)
Seminar focusing on current issues in anthropology. Purpose is to provide a format in which advanced undergraduates can integrate knowledge acquired in previous anthropological course work and evaluate the contribution of the different anthropological subdisciplines to understanding contemporary problems. Emphasis placed on oral and written communication. Prereq: Major in anthropology; senior standing.

**ANT 585 FIELD LABORATORY IN ARCHAEOLOGICAL RESEARCH.** (3-6)
Practical supervised training in-field in archaeological research methods and techniques, problem analysis, field laboratory procedures, recording methods. Laboratory, 20 to 40 hours per week. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

**ANT 600 PRACTICUM IN TEACHING ANTHROPOLOGY.** (1)
Guided practical experience in teaching, supplemented with group discussions of teaching practice and selected reading on lecture technique, course development, test writing and other skills for participation in the professoriate. May be repeated to a maximum of three credits. Prereq: Graduate status in anthropology or consent of instructor.

**ANT 601 INTRODUCTORY SEMINAR IN ETHNOGRAPHY.** (3)
A critical examination of key writings in ethnography, focusing on issues of data gathering, analysis and interpretation of results, and disciplinary significance. This seminar is a requirement for the advanced degree in anthropology. Prereq: Admission to the anthropology graduate program; ANT 510 and ANT 533 or equivalents; consent of instructor.

**ANT 602 INTRODUCTORY SEMINAR IN CULTURE DYNAMICS.** (3)
An in-depth discussion of the theory and method of the various approaches to the study of long-term culture change in past and present societies. This course stresses interdisciplinary problem-oriented research on a specific theme of culture change. Emphasis also is placed on the development of writing skills, oral presentations, professional standards or performance in research and communication, and critical thinking. Prereq: Admission to the Anthropology graduate program and ANT 601; consent of instructor.

**ANT 620 TOPICS AND METHODS OF EVALUATION.** (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as EDP/EPE 620/SOC 622.)

**ANT 621 ADVANCED TOPICS AND METHODS OF EVALUATION.** (3)
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE 620/SOC 622; and consent of instructor. (Same as EDP/EPE 621.)

**ANT 637 SOCIOCULTURAL DIMENSIONS OF ECONOMIC DEVELOPMENT.** (3)
Examination of social, cultural and economic conditions in lesser developed countries. Discussion of the various socioeconomic and cultural theories of change and developments, and of alternative policies for the world of the future. Considers the possible roles for social scientists in policy formulation and application. Prereq: Six graduate credits in social sciences or consent of instructor. (Same as SOC 637.)

**ANT 638 FOOD SYSTEMS AND AGRARIAN CHANGE.** (3)
An examination of the way in which the organization of food procurement, distribution, and consumption in developing countries has affected and been affected by agrarian change. Prereq: Consent of instructor. (Same as SOC 638.)

**ANT 640 SCIENCE, AGRICULTURE, AND DEVELOPMENT.** (3)
An in-depth examination of the interrelations between science, agriculture, and development. Both domestic and international issues are explored. Prereq: Graduate standing in the social or agricultural sciences. (Same as SOC 640.)

**ANT 641 GENDER ISSUES IN DEVELOPMENT.** (3)
An examination of gender issues in domestic and international development. Prereq: Graduate standing in the social or agricultural sciences or permission of the instructor. (Same as SOC 641).

**ANT 650 THEORY IN ARCHAEOLOGY.** (3)
This seminar examines the development of archaeological theory with specific emphasis on the discipline of anthropological archaeology in the New World. Particular schools and trends in contemporary archaeological theory are discussed in detail. Prereq: ANT 541 or consent of instructor.

**ANT 651 ARCHAEOLOGICAL DATA ANALYSIS.** (3)
This course examines the manipulations of archaeological data that follow fieldwork. These procedures, usually consisting of data processing and classification, are often undertaken in the field as data are being gathered. Data organization and analysis are the basic goals of this course. May be repeated to a maximum of six credits. Prereq: ANT 541 or consent of instructor.

**ANT 652 DEMOGRAPHIC ARCHAEOLOGY.** (3)
A seminar which examines the theory and methodology used by archaeologists to study population aggregates ranging from individual households to regional populations. Particular emphasis given to theoretical perspectives which integrate ecological, social and spatial analyses of population data. Prereq: ANT 541 or consent of instructor.

**ANT 653 PREHISTORIC ECONOMICS.** (3)
This seminar examines the theory and methodology used by archaeologists to study and reconstruct the economic structure of past societies. Discussion examines forms of subsistence and craft production and systems of resource distribution and exchange. Prereq: ANT 541 or consent of instructor.

**ANT 654 ARCHAEOLOGY OF POLITICAL SYSTEMS.** (3)
This course is designed to study the archaeology of political systems. The goals are to discuss the major trends, concepts, and perspectives in researching event and process in the evolution of political organization and social integration. A corollary goal is to examine the empirical evidence for, and archaeological correlates of, political evolution. It is not intended as a comprehensive coverage of all theories about past political systems, or as a survey of the rise and development of political forms in complex societies around the world. Prereq: ANT 541, ANT 602 or consent of instructor.

**ANT 660 ETHNOGRAPHIC RESEARCH METHODS.** (3)
Cultural anthropology research techniques including key informant and ethnosemantic interviewing, participant observation, field note preparation and coding, survey methods, photography, mapping, rapid assessment procedures and other specialized techniques are disoussed and practiced. Ethical responsibilities of anthropologists reviewed. Prereq: Major or graduate standing in a social science, or consent of instructor.

**ANT 661 ETHNOGRAPHIC DATA ANALYSIS.** (3)
A practical, learning-by-doing approach to the analysis of qualitative and quantitative ethnographic data. Students will work with ethnographic field notes, life histories, ethnographic survey data, and other results of field research. Prereq: ANT 660 and a statistics course.

**ANT 662 RESEARCH DESIGN.** (3)
Seminar discussion and guided individual student research covering the relationship between theory, methods, and reality; how to better design anthropological inquiry. Prereq: One year of graduate work in a behavioral science field and consent of instructor.

**ANT 664 CULTURAL ISSUES IN MENTAL ILLNESS.** (3)
An in-depth discussion of theory and method of the various approaches to cultural and social factors in the etiology, distribution, and treatment of mental illness. Data from non-Western and Western cultures are examined. Prereq: Enrollment in graduate program in anthropology, sociology, psychology, educational and counseling psychology, or consent of instructor. (Same as BSC/PSY 664.)

**ANT 684 FARMING SYSTEMS RESEARCH METHODS.** (3)
A critical analysis of the concepts, methods, and practices of farming systems research. Design and carry out an FSR project. Prereq: Graduate standing in the social or agricultural sciences. (Same as SOC 684.)

**ANT 691 CULTURAL RESOURCE MANAGEMENT CLERKSHIP.** (1-3)
Practical experience in aspects of the cultural resource management process are provided through a one-semester rotation of work in the Office of State Archaeology (OSA), Museum of Anthropology (UKMA), and the program for Cultural Resource Assessment (PCRA). Students are assigned tasks at each work assignment rotation during the semester and are evaluated on the basis of work performance and a journal summary of this experience by a committee of their supervisors. Prereq: Graduate standing in anthropology or consent of instructor.

**ANT 720 SEMINAR IN CULTURAL ANTHROPOLOGY.** (3)
Intensive examination of selected topics of theoretical and/or methodological interest in cultural anthropology. Possible topics include religion, kinship and marriage, political systems, law, economic systems, modernization, urbanization, cross-cultural methodology, and others. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**ANT 725 SEMINAR IN APPLIED ANTHROPOLOGY.** (3)
Seminar discussion and individual or group research in the applications of social anthropology theory and methods to the solution of institutional, community, regional or national problems. Attention will be given to ethics, to the role attributes of the applied anthropologist, and to the history of applied anthropology. Prereq: ANT 525 or consent of instructor.

**ANT 731 ADVANCED SEMINAR IN SOCIAL AND POLITICAL DYNAMICS.** (3)
Theoretical frameworks for the analysis of political systems and processes. The seminar explores politics as action and systemic process in contemporary, prehistoric, and historical contexts. Students are expected to formulate research questions and discuss current theory in a critical fashion. Prereq: ANT 601 and 602 or consent of instructor.

**ANT 732 ADVANCED SEMINAR IN ECOLOGICAL ANTHROPOLOGY.** (3)
A study of interrelationship among populations, organization, environment, technology and symbols. The course focuses on recent anthropological contributions to the understanding of ecological relationships both now and in the past, including how people exploit the environment and how resource exploitation results in environmental change. Prereq: Completion of ANT 601 and ANT 602 or consent of instructor.

**ANT 733 ADVANCED SEMINAR IN SYMBOLS AND MEANING.** (3)
Advanced seminar in the development of anthropological approaches to cultural meaning in actions, thought, and language from the 1960s. Includes the social structural approach to symbolism and ritual, cognitive approaches to meaning, the anthropology of experience and expression, interpretive and post-modern approaches, and topical applications of these approaches. Prereq: ANT 601 and 602 or consent of instructor.

**ANT 734 ADVANCED SEMINAR IN ECONOMIC ANTHROPOLOGY.** (3)
Theoretical frameworks for the analysis of economic systems and processes. The seminar explores the interaction between economic phenomena and other aspects of social and political organization both as action, structure, and systemic process in contemporary, prehistoric, and historical contexts. Students are expected to formulate research questions and discuss current theory in a critical fashion. Prereq: ANT 601 and 602 (ANT 538 is recommended) or consent of instructor.

**ANT 735 ADVANCED SEMINAR IN PRACTICE AND ACTION.** (3)
Comparative analysis of various modes of social action including action research, advocacy, cultural action, and participatory action research. Foundations in social theory considered. Prereq: Admission to graduate program in anthropology or consent of instructor.

**ANT 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ANT 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ANT 750 GRADUATE FIELD STUDY IN ANTHROPOLOGY.** (1-6)
Field research as part of a long-range anthropological research program for graduate interns training under direct faculty supervision. Provides student with experience conducting scientific research as research team member. Report required. Laboratory, three hours to full time. Prereq: Appropriate language fluency; preparatory area study plus consent of instructor.

**ANT 765 ADVANCED SEMINAR IN MEDICAL ANTHROPOLOGY.** (3)
(1) Advanced history and theory of medical anthropology; (2) research design, field work, analysis of data in medical anthropology. Prereq: ANT 529 or equivalent, or consent of instructor. (Same as BSC 765.)

**ANT 767 PRACTICUM IN APPLIED ANTHROPOLOGY.** (1-6)
Practical field experience in which the student applies the theory and method of social anthropology to the solution of a problem defined by the student in consultation with a community or a public or private service agency. Required of all doctoral students in Applied Anthropology. Prereq: Consent of instructor.

**ANT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ANT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ANT 770 TOPICAL SEMINAR: (Subtitle Required).** (3)
Intensive work in particular fields of anthropology. May be repeated four times. Prereq: Graduate standing.

**ANT 774 BEHAVIORAL AND ECOLOGICAL ASPECTS OF HUMAN NUTRITION.** (3)
This course will examine the social ecology of human nutrition using the evolutionary perspective. It will apply the concepts and principles of social science to the study of human nutrition. The course serves also as an introduction to nutritional anthropology. Discussions will focus on the origins of the human diet; human dietary adaptation to diverse ecological and technological situations; social, cultural, behavioral and ecological factors that influence dietary choices in primitive, peasant, modernizing and contemporary societies; and methodological issues in studying food habits and assessing nutritional status. Among the topics that may be addressed are: social, cultural, and psychological factors involved in eating disorders; infant feeding cross-culturally; causes of malnutrition in the Third World as well as in developed countries; ethnic variation in food ideology and food habits; issues in the applicability of anthropometric measures to diverse populations and culturally appropriate approaches to nutritional change. Prereq: Consent of instructor. (Same as BSC 774.)

**#ANT 776 SEMINAR IN DEPENDENCY BEHAVIOR.** (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as SOC/PSY/BSC 776.)

**ANT 790 RESEARCH PROBLEMS IN ANTHROPOLOGY.** (1-6)
Intensive study in the fields of physical anthropology, archaeology and ethnology with qualified staff members. May be repeated to a maximum of nine credits. Prereq: Admission into the graduate program.

## APP Appalachian Studies

**APP 200 INTRODUCTION TO APPALACHIAN STUDIES.** (3)
A multidisciplinary introduction to Appalachian culture, history and society. Examines how Appalachia came to be viewed as a distinct region; looks at its place in American life.

## ARC Architecture

**ARCHITECTURAL STUDIO SEQUENCE**

**ARC 825 DRAWING STUDIO I.** (1)
Focuses on the rigors of observational drawing. Structure, contour, line, and color are explored through study of the human body with attention to their application to the architectural experience. Studio, three hours per week. Prereq: Admission to the College.

**ARC 826 DRAWING STUDIO II.** (1)
A continuation of Drawing Studio I with further development of the themes of two-dimensional representation integral to the architectural experience. Studio, three hours per week. Prereq: ARC 825.

**ARC 863 ARCHITECTURAL DESIGN STUDIO I: MODERN SPACE.** (6)
Offers the student an understanding of architectural language based on the new hypotheses about space proposed by Cubism and Neoplasticism. Projects explore their aesthetic and poetic possibilities, with an emphasis on coherence in space, structure, and program. Studio, twelve hours per week. Prereq: ARC 862 with at least a grade of C.

**ARC 864 ARCHITECTURAL DESIGN STUDIO II: SINGLE AND MULTIPLE OBJECTS.** (6)
Extends the consideration of the issues related to the isolated object to that object upon its multiplication, introduces the issues of site and context, and focuses attention on strategies to obtain thematic unity in a manner that enables the student to develop an architectural language. Studio, twelve hours per week. Prereq: ARC 863 with at least a grade of C.

**ARC 865 ARCHITECTURAL DESIGN STUDIO III: CONTEXT.** (6)
Emphasizes the problems of site and context and the way they influence the specificity of the object as well as the programmatic strategies. Studio, 12 hours per week. Prereq: ARC 864 with at least a grade of C.

**ARC 866 ARCHITECTURAL DESIGN STUDIO IV: TRANSFORMATION AT THE LARGE SCALE.** (6)
Explores the relationship between one type of unit and another, between a type of unit and a series, between the aggregation of a series and the structural integrity and unity of a building, and between a building's image, scale, and context. Studio, 12 hours per week. Prereq: ARC 865 with at least a grade of C.

***ARC 867 ARCHITECTURAL DESIGN STUDIO V: COMPLEX PROGRAM IN COMPLEX CONTEXT.** (6)
Explores the dialogue between the functional requirements of a complex program and its context through a consideration of the program and the constraints of the site and a detailed development of a portion of the project. Studio, twelve hours per week. Prereq: ARC 866 with at least a grade of C.

***ARC 868 ARCHITECTURAL DESIGN STUDIO VI: A PIECE OF THE CITY.** (6)
Confronts the problem of the design of public space in the urban and/or suburban fabric of the city and explores the transformation of a fragment of the city through a socially responsive project. Studio, twelve hours per week. Prereq: ARC 867 with at least a grade of C.

**HISTORY AND THEORY OF ARCHITECTURE SEQUENCE**

**ARC 101 INTRODUCTION TO ARCHITECTURE.** (3)
An introductory course for students not enrolled in the College of Architecture. Familiarizes students with the profession with emphasis on understanding architectural theory, design, and practice through the study of critical issues in architecture and their relationships to society and culture.

**ARC 120 INTRODUCTION TO THE HISTORY AND THEORY OF ARCHITECTURE.** (3)
Introduces recurrent themes in the history and theory of architecture through an examination of seminal examples from different cultures in various historical periods and serves as an introduction to surveys of the history and theory of architecture. Prereq: Admission to College of Architecture or permission of dean.

**ARC 121 HISTORY AND THEORY OF ARCHITECTURE I.** (3)
The first of four courses in the survey of the history and theory of architecture in the West, with attention to the achievements in Mesopotamia and Egypt, the empires of the Greeks and Romans, and medieval Europe. Prereq: ARC 120.

**ARC 222 HISTORY AND THEORY OF ARCHITECTURE II.** (3)
Introduces the architecture of the Renaissance and baroque architecture, with emphasis on the seminal Italian contributions as a basis for the investigation of regional varieties elsewhere and the influence of the heritage on contemporary issues in design. Prereq: ARC 121.

**ARC 223 HISTORY AND THEORY OF ARCHITECTURE III.** (3)
Introduces the developments in architecture and theory in the Enlightenment, the nineteenth century, and the early twentieth century. Prereq: ARC 222.

**ARC 324 HISTORY AND THEORY OF ARCHITECTURE IV.** (3)
Continues the investigations of the history and theory of architecture in the twentieth century. Prereq: ARC 223.

**ARC 820 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE I: THEORIES.** (3)
A series of seminars devoted to investigations of theories of architecture. Prereq: ARC 324.

**ARC 821 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE II: URBAN FORM.** (3)
A series of seminars devoted to investigations of topics in urban forms. Prereq: ARC 325.

**ARC 822 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE III: TECHNIQUES.** (3)
A series of seminars devoted to investigations of the means by which architecture is made. Prereq: ARC 324.

**ARC 823 INDEPENDENT STUDY IN HISTORY AND THEORY OF ARCHITECTURE IV.** (3)
Special research projects and independent study in the history and theory of architecture. Not required of majors and may be taken as a professional elective. Prereq: ARC 822 or permission of instructor.

**ARC 827 REPRESENTATION.** (2)
Application of principles of trigonometry, Euclidean geometry, and descriptive geometry to representation. Attention to isometric, axonometric, perspectival, and other representations of space. Prereq: ARC 861 and MA 112.

**STRUCTURAL DESIGN AND ANALYSIS**

**ARC 325 THEORIES OF URBAN FORM.** (3)
An investigation of the factors and a consideration of the theories which have affected urban form.

**ARC 830 STRUCTURAL DESIGN AND ANALYSIS I.** (3)
Conception of building forms and behaviors as total structural systems and major subsystems. The use of mathematics and physics to determine forces, stresses, and deformations in structural systems. Prereq: MA 109 or 123, MA 112 and PHY 201 or their equivalents.

**ARC 831 STRUCTURAL DESIGN AND ANALYSIS II.** (3)
A continuation of ARC 830 with an introduction to computer-aided analysis. Prereq: ARC 828 and ARC 830.

**ARC 832 STRUCTURAL DESIGN AND ANALYSIS III.** (3)
Design of steel structures and timber structures. Prereq: ARC 831.

**ARC 833 STRUCTURAL DESIGN AND ANALYSIS IV.** (3)
Design of reinforced concrete structures, masonry structures, and foundations. Prereq: ARC 832 or consent of instructor.

**MATERIALS AND METHODS OF CONSTRUCTION**

**ARC 829 MATERIALS AND METHODS OF CONSTRUCTION.** (3)
Introduces the art and technics of building, with attention to their influence on the formal language of architecture. Considerations of the properties of materials and methods of construction through analyses of selected works, lectures, and tours of construction sites.

**ARC 836 BUILDING SYSTEMS INTEGRATION.** (3)
A continuation of ARC 829, with an emphasis on the integration of materials, structural systems, and environmental controls. Detailed investigations of the interpretation and employment of materials and systems of construction, with attention to the manner in which they order architecture. Prereq: ARC 829 and ARC 835; coreq: ARC 833.

**ARC 860 TECHNICS AND KINEMATICS I.** (2)
Full-scale, three-dimensional construction, investigations of two-dimensional expression, analysis of texts, and writing as the means to explore theoretical constructs. Lecture, one hour; studio, two hours per week. Prereq: Admission to the College.

**ARC 861 BASIC ARCHITECTURAL DESIGN I.** (4)
Exploration of varieties of architectural experiences through tectonics and individual experimentation. Studio, eight hours per week. Prereq: Admission to the College of Architecture.

**ARC 862 BASIC ARCHITECTURAL DESIGN II.** (4)
A continuation of Basic Architectural Design I with further exploration of tectonics and experimentation as vehicles for the creation of architectural experiences. Studio, eight hours per week. Prereq: ARC 861 with at least a grade of C.

**ENVIRONMENTAL CONTROLS**

**ARC 834 ENVIRONMENTAL CONTROLS I.** (3)
Introduces concepts of the luminous, thermal, and acoustical environment and the mechanical and electrical systems of buildings. Prereq: PHY 203.

**ARC 835 ENVIRONMENTAL CONTROLS II.** (3)
A continuation of ARC 834. Prereq: ARC 834.

**PROFESSIONAL PRACTICE**

**ARC 850 PROFESSIONAL PRACTICE.** (3)
Professional and ethical responsibility to profession and community; procedural matters pertaining to practice and management.

**ADVANCED ARCHITECTURAL PROBLEMS SEQUENCE**

**ARC 828 COMPUTERS AND ARCHITECTURE.** (3)
Introduces computers with an emphasis on the exploration of their applications in architecture. Students will be exposed to the creative potential of computers in design as well as to their analytic capabilities. Lecture, two hours; laboratory, three hours per week.

**ARC 899 THESIS RESEARCH.** (3)
Supervised investigation which is intended to identify the salient issues which will be addressed in the thesis and to provide a rationale for the student's approach to these issues. Prereq: ARC 868 with at least a grade of C and approval of the faculty advisor for the thesis.

**ARC 901 ARCHITECTURAL DESIGN THESIS** (6)
Supervised individual exploration of an architectural problem which permits the student to demonstrate his competence as a designer of buildings and to formalize a coherent personal view of architecture. Studio, twelve hours per week. Prereq: ARC 869 and ARC 899 with at least grades of C.

**ARC 910 ADVANCED ARCHITECTURAL PROBLEMS I.** (7)
Advanced topical studies in architecture. Lecture, two hours; studio, 15 hours. Prereq: Approval of architecture faculty and ARC 813 with grade of C or better.

**ARC 911 ADVANCED ARCHITECTURAL PROBLEMS II.** (7)
Same as ARC 910. Lecture, two hours; studio, 15 hours. Prereq: ARC 910 with grade of C or better.

**ARC 912 INDEPENDENT STUDY.** (3)
Supervised, independent investigations of selected topics in architecture. May be repeated to a maximum of nine credits when topics differ sufficiently. Prereq: Consent of instructor.

**ARC 914 SEMINAR ON SPECIAL PROBLEMS IN ARCHITECTURE.** (3)
Seminar on special problems in architecture and environmental design. Three class hours per week. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911, or consent of instructor.

**ARC 920 PROGRAM IN CONTEMPORARY ARCHITECTURAL HISTORY.** (2)
Analysis of current problems in architectural history, historic urban renewal and preservation, innovations in research techniques and their significance, modern architectural philosophies and their applications. Two class hours per week. Prereq: ARC 823; consent of instructor.

**ARC 922 SEMINAR ON HOUSING.** (2)
A survey of various aspects of housing, while scope of investigation will be international in scale. Participants will select a limited topic concentration of study. Two class hours per week. Prereq: Concurrent ARC 910-911, or consent of instructor.

***ARC 963 SELECTED TOPICS IN ARCHITECTURE (Subtitle required).** (3)
Seminars and workshops for investigations of selected topics in architecture. May be repeated to a maximum of nine credits when topics differ sufficiently. Prereq: Consent of instructor.

**ARC 964 ADVANCED SPECIAL PROBLEMS IN ARCHITECTURE II.** (3)
Seminars and independent investigations in special problem areas in architecture. May be repeated by permission of the dean for a maximum of 15 semester hours.

## ART Art

**ART 100 INTRODUCTION TO ART.** (3)
This course is open to all University students interested in an understanding and appreciation of the visual arts. The formal and expressive qualities of major art forms are examined through lectures and presentations.

**ART 191 ART PROFESSIONS.** (1)
Lectures and discussions on the various art professions as they affect the student, the professional artist, the art historian, the art educator, and the community. May be repeated to a maximum of eight hours.

**ART 501 BASIC MUSEUM TRAINING: HISTORICAL ART.** (3)
Theory and practice of curatorship; care and handling of art objects, conservation, connoisseurship, registration, research, publication, exhibition, public relations. Lectures, demonstrations, visits to galleries and museums, and practical experience in the University Art Gallery. Lecture/discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

**ART 502 BASIC MUSEUM TRAINING: CONTEMPORARY ART.** (3)
Introduction to the special problems of handling and displaying works of contemporary art with consideration of various functions of contemporary art exhibitions and their organization. Lectures, demonstrations, visits to galleries, and practical experience in the University Art Gallery and the Center for Contemporary Art. Lecture/discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

**ART 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ART 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

## AS Aerospace Studies

**AS 111 AEROSPACE STUDIES I, AFROTC.** (1)
A course designed to provide the student with a basic understanding of the nature and principles of war, national power, and the Department of Defense role in the organization of national security. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

**AS 112 AEROSPACE STUDIES I, AFROTC.** (1)
A course designed to provide the student with a basic understanding of the contribution of aerospace power to the total U.S. strategic offensive and defensive military posture. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

**AS 113 LEADERSHIP SEMINAR.** (1)
A course designed for development of basic skills required to be a manager, including communications, human relations, and administration of equal opportunity. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 111.

**AS 114 LEADERSHIP SEMINAR.** (1)
A continuation of AS 113. A course designed to develop managerial skills including superior/subordinate relationships, communications, customs and courtesies, basic drill movements and career progression requirements. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 112.

**AS 211 AEROSPACE STUDIES II, AFROTC.** (1)
Introduces the study of air power from a historical perspective; focuses on the development of air power into a primary element of national security. Leadership experience is continued through active participation in the cadet corps. Lecture, one hour; leadership laboratory, one hour. Prereq: AS 111, 112 or PAS approval.

**AS 212 AEROSPACE STUDIES II, AFROTC.** (1)
Provides a foundation for understanding how air power has been employed in military and non-military operations to support national objectives. Examines the changing mission of the defense establishment, with particular emphasis on the United States Air Force. Leadership experience is continued through participation in the cadet corps. Lecture, one hour; leadership laboratory, one hour per week. Prereq: AS 111, 112 or PAS approval.

**AS 213 LEADERSHIP SEMINAR.** (1)
A course designed for development of advanced skills required to be a manager/leader, including leadership styles, public speaking, group dynamics, motivation and preparation for field training. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 211.

**AS 214 LEADERSHIP SEMINAR.** (1)
A continuation of AS 213. A course designed to develop supervisory management skills to include communications, techniques of critique, social actions, personnel evaluation procedures, problem solving, role playing and field training preparation. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 212.

**AS 331 AEROSPACE STUDIES III, AFROTC.** (3)
A study of management functions with emphasis on the individual as a manager in an Air Force environment. Individual motivational and behavioral process, communication, and group dynamics are included to provide a foundation for the development of professional skills as an Air Force Officer. Students refine their leadership and managerial abilities by organizing and managing a quasi-military unit. Prereq: Acceptance into POC or approval of PAS.

**AS 332 AEROSPACE STUDIES III, AFROTC.** (3)
A study of leadership with specific emphasis on the Air Force leader. Includes theoretical, professional and communicative aspects. In addition, military justice and administrative law are discussed within the context of the military organization. Students continue to develop and refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331 or approval of PAS.

**AS 333 LEADERSHIP LABORATORY.** (0)
Laboratory to accompany AS 331 or AS 332. Pass/fail only.

**AS 341 AEROSPACE STUDIES IV, AFROTC.** (3)
A study of the military profession, civil-military interaction, communicative skills, framework of defense policy, and formulation of defense strategy. Students refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332 or approval of PAS.

**AS 342 AEROSPACE STUDIES IV, AFROTC.** (3)
Continues the study of strategy and the management of conflict, formulation and implementation of U.S. defense policy, defense organization, and case studies in defense policy making. Students also refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332, or approval of PAS.

**AS 343 LEADERSHIP LABORATORY.** (0)
Laboratory to accompany AS 341 or AS 342. Pass/fail only.

**AS 395 INDEPENDENT WORK.** (2-6)
A study of an advanced problem on subject area in aeronautical science under the guidance of a departmental staff member. One discussion per week; term paper required. Prereq: Senior standing in AFROTC Program; major and 3.0 standing in Aerospace Studies.

## ASC Animal Sciences

**ASC 106 INTRODUCTION TO ANIMAL SCIENCES.** (3)
Relationships of food production and consumption to income of humans throughout the world; major livestock (beef and dairy cattle, sheep, swine, poultry and horses) production areas of the world; relationships between live animal merit and yield of retail cuts of meat; identification of skeletal components; identification and functions of reproductive and digestive tract components; characteristics of breeds of beef and dairy cattle, sheep, swine, poultry and horses.

**ASC 120 INTRODUCTORY ANIMAL SCIENCE LABORATORY.** (1)
Provides a laboratory for training students in the basic concepts of livestock production. Students will identify breeds, analyze daily feed allowances, study anatomy and external part nomenclature, observe behavioral characteristics and develop annual management plans for cattle, sheep, swine, poultry and horses produced for food, fiber and recreation. Students will learn to evaluate animals for food, fiber and recreational purposes. To complete the total production cycle, students will participate in food and fiber processing exercises. Laboratory, three hours per week. Prereq. or concur: GEN 106.

***ASC 300 MEAT SCIENCE.** (5)
A historical perspective of the meat industry together with major changes in body type and composition in both the live animal and its end product meat. Students will evaluate live market animals (swine, cattle, sheep) and follow their carcasses and cuts through fabrication and distribution channels. Major topics of discussion will focus on growth and development, inspection, grading, physical and chemical composition of meat and postmortem changes that affect meat quality. Additional information will cover meat marketing trends, nutrition, meat cookery, meat selection, health issues and consumer information. Prereq: ASC 106 or FSC 107.

**ASC 301 LIVESTOCK SELECTION AND EVALUATION.** (3)
Selection principles of purebred and commercial beef cattle, sheep, swine and horses. Evaluation of live animal and carcass characteristics of beef cattle, sheep and swine. Emphasis placed on oral reasons. Laboratory, six hours. Not open to freshmen. Prereq: GEN 106.

**ASC 303 EVALUATION AND GRADING OF MEATS.** (2)
A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, quality and maturity as they relate to palatability and acceptance by the consumer. Laboratory, four hours. Prereq: ASC 304 or FSC 306.

**ASC 309 ADVANCED EVALUATION AND GRADING OF MEAT.** (2)
Further consideration of the factors involved in selecting, grading and evaluating carcasses and wholesale cuts of beef, pork, and lamb. Emphasis will be placed on writing reasons. Laboratory, four hours. Prereq: ASC 303 or consent of instructor.

***ASC 310 EQUINE ANATOMY AND CONFORMATION.** (2)
Anatomy of the horse with emphasis on the feet and legs. Topics will also include analysis of gaits, movement and the causes of common unsoundness with particular attention to the relationship between conformation and soundness and the application of visual appraisal to the selection of horses for performance and breeding. Prereq: ASC 106 and ASC 120.

**#ASC 311 ADVANCED EQUINE EVALUATION.** (1)
Advanced study of conformation and performance in the horse. Selection of horses of different breeds based on confirmation, breed character and movement, Emphasis will be placed on developing a knowledge of industry standards and preparation of oral reasons. Prereq: ASC 310.

**ASC 312 ADVANCED LIVESTOCK SELECTION AND EVALUATION.** (2)
Selection of purebred and commercial beef cattle, sheep, swine and horses. Special emphasis on oral reasons, livestock contest procedures and herd improvement principles. Laboratory, six hours. Prereq: ASC 301 or consent of instructor.

***ASC 320 EQUINE MANAGEMENT.** (3)
Study of the basic principles associated with horse management. Topics will include equine behavior, equine diseases and herd health programs, facilities and environmental management, nutrition and feeding management. Prereq: ASC 106 and ASC 120.

**ASC 321 DAIRY CATTLE EVALUATION.** (2)
Evaluation of dairy cattle for type characteristics. Laboratory, four hours.

**ASC 323 ADVANCED DAIRY CATTLE EVALUATION.** (1)
Open only to those who have consent of instructor. Laboratory, two hours. Prereq: ASC 321.

**#ASC 340 POULTRY PRODUCTION.** (3)
A study of the application of avian biology to modern poultry production. Topics include anatomy, physiology, reproduction, incubation and embryonic development, breeding and genetics, nutrition and feeding, disease control, housing and environmental control, management, poultry and egg products, and the structure of the poultry industry. For majors and nonmajors. Prereq: ASC 106 or equivalent.

**ASC 360 GENETICS.** (3)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, molecular, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as AGR/ENT 360.)

**ASC 362 ANIMAL BREEDING.** (3)
Study of roles of selection and mating systems for production of genetically superior livestock populations. Prereq: ASC 360.

**ASC 364 REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS.** (3)
Introduction to the anatomical and physiological processes of farm animal reproduction. Evaluation of management procedures as they relate to reproductive physiology. Prereq: GEN 106, BIO 104, CHE 230 or CHE 236.

**ASC 378 ANIMAL NUTRITION.** (3)
A fundamental study of the nutrients, their utilization and their role in the animal. Prereq: CHE 230 or 236.

**ASC 380 FEEDS AND FEEDING.** (3)
The composition and nutritional characteristics of common feedstuffs. The digestive systems, nutritional requirements, formulated rations and economical feeding programs for farm animals. Lecture, two hours; laboratory, two hours. Prereq: ASC 378.

**ASC 382 PRINCIPLES OF LIVESTOCK NUTRITION.** (3)
A study of the basic principles of livestock nutrition and the application of these principles in the use of various feeds and products in the feeding of beef cattle, dairy cattle, horses, sheep and swine— including the study of tables of nutrient requirements and feed composition and detailed study on the systematic balances of daily rations and formulation of feed mixtures. Lecture, two hours; laboratory, two hours per week. For nonmajors only.

**ASC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE.** (2)
Course designed for students interested in pursuing independently some specific problem. May be repeated for maximum of four credits. Prereq: Consent of instructor. (Same as FSC 395.)

**ASC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE.** (1-6)
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated to a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as FSC 399.)

**ASC 404G SHEEP SCIENCE.** (4)
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and management of sheep for efficient lamb and wool production. Lecture, two hours per week; laboratory, four hours per week. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380 or consent of instructor.

***ASC 406 BEEF CATTLE SCIENCE.** (4)
Scope and importance of the beef cattle industry; roles of the major cattle breeds and organizations associated with the beef cattle industry; application of equipment, identification, nutrition, reproduction, genetics, health, marketing, taxation and management principles to beef cattle production; impact of current economic, social and environmental issues on the beef cattle industry. Prereq: ASC 300, ASC 362, ASC 364, ASC 380.

**ASC 408G SWINE SCIENCE.** (3)
A study of scope and importance of the swine industry. The application of the principles of selection, reproductive physiology, breeding, nutrition, housing, environment and management to the modern production of swine. Lecture, two hours; laboratory, two hours. Prereq: ASC 300, ASC 362, ASC 364, and ASC 380.

**ASC 410G HORSE SCIENCES.** (3)
Detailed study of the anatomy and physiology of the horse as they relate to the nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364, ASC 380.

**ASC 420G DAIRY CATTLE SCIENCE.** (3)
Scope and importance of the dairy cattle industry; selection, breeding, housing, feeding and management of dairy cattle. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364, and ASC 380.

**†ASC 442G POULTRY SCIENCE.**

**ASC 462G ARTIFICIAL INSEMINATION AND FERTILITY OF FARM ANIMALS.** (2)
A course designed to acquaint students with current methods of applying artificial insemination to the improvement of farm animals with special reference to cattle. Emphasis will be on management of herds for maximum fertility. Lecture, one hour; laboratory, two hours per week. Prereq: ASC 364 and permission of instructor.

***ASC 470 CAPSTONE FOR ANIMAL AGRICULTURE.** (3)
Discussion of the importance of livestock production to society and consideration of major issues impacting animal agriculture. Principles and practices learned in disciplinary and commodity Animal Sciences courses are integrated into a unified perspective, and the scientific method is employed as an approach to problem analysis and resolution. Refinement of skills in critical thinking, information gathering, writing, and oral communication is emphasized. Prereq: Senior standing in College of Agriculture, Animal Sciences major.

**ASC 564 MILK SECRETION.** (3)
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Prereq: ASC 380, VS 350.

**ASC 580 PRINCIPLES OF ANIMAL NUTRITION.** (3)
The chemistry and physiology of animal nutrition and the nutritive requirements for growth, fattening, reproduction, lactation, and other body functions, Prereq: ASC 378 and ASC 380 or graduate standing.

**ASC 601 MAMMALIAN ENDOCRINOLOGY.** (3)
An introduction to the basic anatomy, physiology and biochemistry of endocrine systems with emphasis on mechanisms of hormone synthesis, secretion and action. Lectures and reading assignments will focus on endocrine function in mammalian species, including laboratory animals, humans and livestock. Prereq: BCH 401G and BIO 350 or equivalents. (Same as PGY 601.)

**ASC 630 ADVANCED MEAT SCIENCE.** (4)
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: ASC 304, ASC/FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as FSC 630.)

**ASC 660 PHYSIOLOGY OF REPRODUCTION.** (3)
Physiological processes of reproduction in farm animals: gonadal functions, endocrine relationships, fertility, and factors affecting reproductive efficiency. Prereq: ASC 364, ASC 550.

**ASC 664 ADVANCED ANIMAL BREEDING.** (3)
Advanced study of selection and mating system theory applicable to production of genetically superior livestock populations. Prereq: ASC 362 and STA 570; STA 671 and STA 672 desirable.

**ASC 680 LABORATORY METHODS IN NUTRITIONAL SCIENCES.** (4)
The use of laboratory techniques and instrumentation in the solution of fundamental problems of nutrition. Lecture, one hour; laboratory, six hours. (Same as NS 680.)

**ASC 681 ENERGY METABOLISM.** (2)
An in-depth discussion of nutritional energetics, from the standpoint of factors which influence the utilization of dietary energy. A critical review of current literature. Prereq: ASC 378 or equivalent, BCH 502 or equivalent or consent of instructor.

**ASC 682 MICROBIAL ECOLOGY OF DIGESTION.** (4)
Principles of microbiology as they relate to nutrition and digestion in ruminant and nonruminant animals. Procedures for cultivation, isolation and characterization of anaerobic bacteria from the gastrointestinal tract. Methods for measuring and evaluating microbial growth and activity in the gastrointestinal tract. Lecture, two hours; laboratory, four hours. Prereq: BIO 476G or equivalent and consent of instructor.

**ASC 683 PROTEIN METABOLISM.** (2)
A study of the principles and present concepts of protein and amino acid nutrition and metabolism in the animal. Prereq: Graduate level biochemistry.

**ASC 684 ADVANCED RUMINANT NUTRITION.** (3)
Principles of ruminant metabolism in the utilization of feedstuffs for meat, milk, and wool production. Prereq: ASC 682 and two or more courses from ASC 681, ASC 683, ASC 685 and ASC 687 or consent of instructor.

**ASC 685 MINERAL METABOLISM.** (2)
An in-depth review of the function, requirement deficiency and toxicity of mineral- elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent, BCH 502 or equivalent or consent of instructor. (Same as NFS 685.)

**ASC 686 ADVANCED NONRUMINANT NUTRITION.** (3)
A study of nutrient utilization as influenced by digestion, absorption and metabolism with emphasis on swine and poultry. Prereq: One course each in nutrition and biochemistry.

**ASC 687 VITAMIN METABOLISM.** (2)
Detailed study of the metabolism of vitamins and the role of vitamins in the metabolism of carbohydrates, proteins, lipids, and minerals. Prereq: BCH 502 or CHE 552 or consent of instructor.

**ASC 688 EQUINE NUTRITION.** (2)
Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the equine for maintenance, growth, reproduction, lactation and work. Prereq: One course in nutrition and physiology or biochemistry or consent of instructor.

**ASC 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ASC 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ASC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ASC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ASC 771 ANIMAL SCIENCE SEMINAR.** (1)
May be repeated twice for a maximum of three credits.

**ASC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS.** (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 780.)

**ASC 781 SPECIAL PROBLEMS IN GENETICS AND ANIMAL BREEDING.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

**ASC 782 SPECIAL PROBLEMS IN ANIMAL NUTRITION.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

**ASC 783 SPECIAL PROBLEMS IN REPRODUCTIVE PHYSIOLOGY (Subtitle required).** (1-4)
Intensive study or investigation of topics in physiology not covered in formalized courses. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

**ASC 790 RESEARCH IN ANIMAL DERIVED FOODS.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 790.)

**ASC 791 RESEARCH IN GENETICS AND ANIMAL BREEDING.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.

**ASC 792 RESEARCH IN ANIMAL NUTRITION.** (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.

**ASC 793 RESEARCH IN REPRODUCTIVE PHYSIOLOGY (Subtitle required).** (1-6)
Original investigation of mechanisms and problems related to mammalian reproduction. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

## AST Astronomy

**AST 191 THE SOLAR SYSTEM.** (3)
One part of the two-semester introduction to astronomy. This course is primarily about the nature, origin, and evolution of the planets of our solar system and of their satellites. Special emphasis is given to recent spacecraft studies of the solar system. Related topics include the nature of comets, the uses of astronomical telescopes, and eclipses and other solar phenomena. Prereq: Two years of high school algebra or MA 108R concurrently.

**AST 192 GALACTIC AND EXTRA-GALACTIC ASTRONOMY.** (3)
One part of a two-semester introduction to astronomy. This course concentrates on the universe outside our own solar system. A principle theme is the origins and evolution of stars, of galaxies, and of the universe at large. Highlights include the nature of black holes and quasars, synthesis within stars of the chemical elements essential for life, the Big Bang model of the formation of the universe, and the possible fates of the universe. Prereq: Any AST or PHY course or consent of instructor.

**AST 591 ASTROPHYSICS I - STARS.** (3)
Structure of the universe - an overview: hierarchy of objects, the distance ladder. Stellar structure: hydrostatic equilibrium, energy transport, nuclear energy generation, equilibrium solutions. Stellar evolution: nucleosynthesis, evolution off the main sequence, final stages of stellar life - white dwarfs, supernovae, neutron stars and black holes. Binary stellar systems. Prereq: PHY 361, PHY 416G, PHY 417G. (Same as PHY 591.)

**AST 592 ASTROPHYSICS II - THE GALAXY.** (3)
Interstellar matter: gas and dust, interstellar reddening, absorptions lines, 21 cm observations. Phases of the interstellar medium: HII regions, atomic and molecular clouds. Star formation. Stellar populations. Galactic structure and dynamics: the galactic nucleus, spiral structure, rotation curve, dark matter. Prereq: PHY 591. (Same as PHY 592.)

**AST 639 PHYSICAL PROCESSES IN ASTROPHYSICS.** (3)
A lecture and problem course covering the physical processes encountered in astrophysics. The topics covered will include micro-physical processes in stellar atmospheres and the interstellar medium, high-energy astrophysics, and basic hydrodynamics and shock waves. Prereq: PHY/AST 592 or consent of instructor. (Same as PHY 639.)

**AST 640 GALAXIES AND COSMOLOGY.** (3)
A course covering extra-galactic astronomy and cosmology. Topics include properties of galaxies, active galaxies and quasars. The standard big bang model of the universe will be discussed in detail, including observational cosmology, nucleosynthesis in the early universe and formation of large scale structure. Prereq: PHY/AST 592 or consent of instructor. (Same as PHY 640.)

## B&E Business And Economics

**#B&E 100 INTRODUCTION TO BUSINESS AND ECONOMICS.** (1)
An overview of the business enterprise, emphasizing the functional areas of business, their interrelationships, and how they are integrated into the business enterprise.

**B&E 309 INTRODUCTION TO INTERNATIONAL BUSINESS.** (3)
The course focuses on the management of international businesses, investigating the effects of differences in national requirements, and cultural expectations on management. Lectures by a variety of faculty and guest speakers will discuss the global economy, address a variety of topics.

## BA Business Administration

**BA 601 TOTAL QUALITY MANAGEMENT.** (3)
An examination of the theory and practice of total quality management. The course emphasizes cross functional analysis of contemporary quality management practice.

**BA 610 GLOBAL BUSINESS MANAGEMENT.** (3)
This course examines the problems of managing a business enterprise which spans international boundaries. Students will develop an understanding of the political, social, economic, and technological factors driving globalization and will consider the impact of these forces on competition, markets, industry structure, and organization.

**BA 700 TEACHING METHODS IN BUSINESS.** (0)
A three part course that examines what constitutes good teaching and explores effective techniques for college instruction. Seminars emphasize practical information for both the principal activities and the details of teaching. Departmental discussions allow students to discuss issues that arise in their teaching practice. Reviews of classroom performance provide professional feedback in order to enhance on-the-job learning. Seminar, two hours per week. Prereq: Approval of Director of Graduate Studies. (Same as ECO 700.)

**BA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**BA 762 RESEARCH METHODOLOGY.** (3)
Examines fundamental concepts in design, control, and measurement for social science research with emphasis on: reliability, internal and external validity, and causality. Prereq: Admission to DBA program and prior completion of or concurrent enrollment in a graduate level course on the general linear model.

**BA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**BA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

## BIO Biological Sciences

***BIO 102 HUMAN ECOLOGY.** (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth. Not for life science majors.

***BIO 103 BASIC IDEAS OF BIOLOGY.** (3)
Introductory biology. Discussion topics are those relevant to both plants and animals — cell structure and function, molecules important to living things, metabolism, heredity, environment. Not for life science majors.

**BIO 104 ANIMAL BIOLOGY.** (3)
An introduction to the major areas of interest in animal biology, e.g., life processes, the cell, development, heredity, body systems, evolution, taxonomy, phylogeny, ecology. Prereq: High school chemistry recommended.

**BIO 105 ANIMAL BIOLOGY LABORATORY.** (1)
Laboratory to be taken concurrently with BIO 104. Laboratory, two hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 104 should be taken concurrently.

**BIO 106 PRINCIPLES OF PLANT BIOLOGY.** (3)
The principles underlying the structure, physiology and reproduction of flowering plants. Prereq: High school chemistry recommended.

**BIO 107 PLANT BIOLOGY LABORATORY.** (1)
Laboratory studies of the morphology, physiology and reproduction of plants with emphasis on the flowering plants. Laboratory, two hours per week. Prereq: One unit of chemistry or consent of instructor. BIO 106 should be taken concurrently.

**BIO 110 INTRODUCTION TO HUMAN BIOLOGY AND HEALTH.** (3)
A course describing basic anatomical and physiological functions of various body cells, tissues, and organs and their interrelationships as a functioning whole. It also deals with basic information as to maintenance of health; brief description of the major and common diseases affecting man—their control and prevention.

**BIO 111 GENERAL BIOLOGY LABORATORY.** (1)
Laboratory studies in the structure and function of cells, plants, and animals; ecology; heredity; and evolution.

**BIO 114 MAJOR DISCOVERIES IN BIOLOGY.** (3)
This course considers important experiments and observations (e.g., the basic principles of genetics, the origin of species, the discovery of penicillin, DNA as genetic material, the conditioned reflex, etc.) that will serve to acquaint students with the excitement of conducting research in biology, while familiarizing them with some of the major advances in this science. The course is designed for students who do not intend to major in biology. Prereq: BIO 103, 104, 106, or equivalent.

***BIO 150 PRINCIPLES OF BIOLOGY I.** (3)
First semester of a highly integrated one-year course (BIO 150 and BIO 152) that deals with essential molecular, cellular, organismal, population, and community principles of biology. Students normally take the associated BIO 151 and BIO 153 laboratories simultaneously. Prereq: CHE 105, or Math ACTE of 26 or above and concurrent enrollment in CHE 105, or chemistry placement test plus concurrent enrollment in CHE 105.

**BIO 151 PRINCIPLES OF BIOLOGY LABORATORY I.** (2)
Laboratory to accompany BIO 150. Laboratory, three hours; recitation, one hour. Prereq: Concurrent or previous enrollment in BIO 150; high school biology and chemistry strongly recommended.

***BIO 152 PRINCIPLES OF BIOLOGY II.** (3)
Continuation of BIO 150. Prereq: CHE 105, or Math ACTE of 26 or above and concurrent enrollment in CHE 105, or chemistry placement test plus concurrent enrollment in CHE 105.

***BIO 153 PRINCIPLES OF BIOLOGY LABORATORY II.** (2)
Laboratory to accompany BIO 152. Laboratory, three hours; recitation, one hour. Prereq: Concurrent or previous enrollment in BIO 152. High school biology and chemistry strongly recommended.

**BIO 204 THE GENETIC PERSPECTIVE.** (3)
An introductory genetics course for nonscience majors examining how heredity affects humans and the remainder of the living world and providing some insights into other fields of science from the geneticist's perspective. Prereq: Courses in high school biology and chemistry or an introductory college biology course.

**BIO 205 HONORS BIOLOGY: STRUCTURE AND FUNCTION OF BIOLOGICAL MOLECULES.** (4)
The prime objectives of this course are to provide honors students with a basic understanding of the structural and functional properties and interrelationships of the molecules that are common to all living systems, and to elucidate the fundamental principles upon which all life is predicated. Lecture, three hours; laboratory, three hours per week. Prereq: Enrollment in Honors Program. High school chemistry is strongly recommended.

**BIO 208 PRINCIPLES OF MICROBIOLOGY.** (3)
This course will introduce biology and nonbiology students to fundamental microbiological principles and techniques. Emphasis is placed upon structural, functional, ecological and evolutionary relationships among microorganisms, principally viruses, rickettsiae bacteria, and fungi and algae. Course open to freshmen with a strong background in sciences. Prereq: High school chemistry recommended.

**BIO 209 INTRODUCTORY MICROBIOLOGY LABORATORY.** (2)
Laboratory exercises in general microbiology. Laboratory, four hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 208 should be taken concurrently.

**#BIO 210 THE LIFE PROCESSES OF PLANTS.** (3)
This course is intended to provide a basic understanding of the natural products and processes that shape the nature of modern plants, and govern their interactions with the environment and characteristics unique to plants, and develop a basic understanding of how these plant attributes relate to oganismic function. Emphasis will be placed on exploring the nature of the major plant biomes of the Earth, their community dynamics, and how member plants compete for space and other resources. Development of optimal plant strategies for reproductive success, plant interaction with other living systems as well as abiotic factors and their defense from predation and attack will also be considered. (Same as PLS 210.)

**BIO 261 FIELD BOTANY.** (3)
A study of the local flora with emphasis on the Bluegrass and the Appalachian regions of Kentucky, with the use of identification keys and herbarium collections. Laboratory, two hours; field trip, four hours per week. Prereq: An introductory course in biology.

**BIO 300 GENERAL ENTOMOLOGY.** (3)
Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: One course in introductory biology. (Same as ENT 300.)

**BIO 315 INTRODUCTION TO CELL BIOLOGY.** (3)
The structure and function of the cells will be considered. Emphasis will be placed on the ultrastructure of cell organelles in plants and animals as a framework for understanding the compartmentalized nature of cell activity. Prereq: BIO 150, 151, 152, 153 (or equivalent). Coreq: CHE 230 or equivalent.

**BIO 340 COMPARATIVE ANATOMY.** (5)
Comparative study of the anatomy of vertebrates with emphasis on evolutionary change, adaptive and functional significance of structural organization and basic concepts of the comparative approach. Laboratory studies on representative vertebrates involving dissections, models, and demonstrations. Lecture, three hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152, 153 or BIO 104, 105 or equivalent course in animal biology.

**BIO 350 ANIMAL PHYSIOLOGY.** (4)
An introduction to the basic principles of animal physiology. An elementary discussion of the major vertebrate organ systems including nutrition, metabolism, respiration, circulation, excretion, muscle contraction, peripheral and central nervous system, and endocrine function emphasizing homeostasis. Lecture, three hours; demonstration, two hours. Prereq: BIO 150-153 or equivalent; CHE 105, 107.

**BIO 351 PLANT KINGDOM.** (3)
An evolutionary survey of the morphology, taxonomy, life histories and biological relationships of all plant groups comprising the plant kingdom. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in biology.

**#BIO 375 BEHAVIORAL ECOLOGY AND SOCIOBIOLOGY.** (3)
This course will explore the selective forces influencing animal behavior, such as foraging, predator avoidance, mate choice, parental care, and social interaction. Specific phenomena to be explored include the evolution of optimal foraging and search images, extravagant male characteristics, female preferences, conflicts between the sexes, infanticide, parent-offspring conflict, dominance hierarchies, optimal group size, altruism, and eusociality. The study of these behaviors integrates ideas and approaches from ecology, genetics, physiology, and psychology. Students will be encouraged to read outside material, to think carefully, logically, and critically about ideas, and to ask questions and defend their views in class. Prereq: A year of introductory biology (BIO 150/152).

**BIO 395 INDEPENDENT WORK IN BIOLOGY.** (1-6)
Special topics for individual students who are capable of pursuing independent investigations in some phase of advanced biology. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**BIO 404G PRINCIPLES OF GENETICS.** (4)
A study of the physical and chemical aspects of the genetic material and their relationship to the expression and inheritance of the phenotype. Lecture, three hours; recitation, two hours per week. Prereq: BIO 150 and BIO 152.

**BIO 425 BIOLOGY SEMINAR.** (1)
Readings and reports on special topics in the biological sciences. Satisfies the seminar requirement for majors in botany, zoology, and biology. May be repeated for a maximum of two credits. Prereq: One year college biology.

**BIO 430G PLANT PHYSIOLOGY.** (3)
Basic principles of plant physiology; the physiological processes of green plants and the effect of the environment on these processes. Prereq: BIO 150, 151, 152, 153 (or equivalent); CHE 230/231 (or equivalent).

**BIO 431G LABORATORY IN PLANT PHYSIOLOGY.** (2)
Laboratory for BIO 430G. Laboratory, four hours per week. Prereq or concur: BIO 430G.

**BIO 451G INTRODUCTORY ECOLOGY.** (4)
A nonlaboratory course in basic ecology taught jointly by botany and zoology departments. Will stress the ecosystem approach to understanding the interrelationships between organisms and their environment including current environmental problems. Lecture, three hours; recitation, one hour. Prereq: BIO 150-153 or BIO 104-107 or consent of instructor.

**BIO 461 INTRODUCTION TO POPULATION GENETICS.** (2)
This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and micro-organisms), but some theoretical derivations will also be introduced. Prereq: AGR 360 (or equivalent) and one course in probability/statistics. (Same as AGR/ENT/FOR 461.)

**BIO 476G GENERAL MICROBIAL PHYSIOLOGY.** (4)
Microorganisms: their physiology, morphology, fine structure, genetics and metabolism in relationship to bacterial growth and division. Lecture, two hours; laboratory, four hours. Prereq: CHE 230 and BIO 150, 151, 152, 153 (or equivalent).

**BIO 494G IMMUNOBIOLOGY.** (3)
A survey of theories and mechanisms of immunity including: nature of antigens and antibodies, antigen-antibody reactions, immunocompetent cells, immunogenetics, allergic reactions, tumor immunology and transplantation immunology. Prereq: BCH 401G (may be taken concurrently) and BIO 108 or BIO 276, or BIO 476G, or consent of instructor. (Same as MI 494G.)

***BIO 502 PRINCIPLES OF SYSTEMS, CELLULAR AND MOLECULAR PHYSIOLOGY.** (5)
Advanced survey of major mammalian physiological systems at the systems, cellular and molecular level; lectures, assigned reading, advanced texts or monographs, demonstrations and problem oriented study questions. Prereq: One year each, physics, general chemistry; PGY 206 or its equivalent. (Same as PGY 502.)

**BIO 508 EVOLUTION.** (3)
Mechanisms of evolutionary change, with a brief summary of historical evolution, especially of the Metazoa. Prereq: BIO 404G or ASC/AGR 360.

**BIO 510 RECOMBINANT DNA TECHNIQUES LABORATORY.** (4)
An introduction to the construction, isolation, and analysis of recombinant DNA clones, with emphasis on practical experience in basic techniques. Graduate students will be given first preference in course enrollment. Lecture, one hour; laboratory, six hours per week. Prereq: BIO 404G and BIO 276 or equivalent and BCH 401G, or BCH 501 or BCH 502 or equivalent.

**BIO 515 GENERAL CELL BIOLOGY.** (3)
An integrative, analytical study of the cell as the basic unit of biological structure and function, with emphasis on eukaryotes. Lecture, discussions with readings in some original literature. Prereq: BIO 315 or BCH 401G or equivalent and consent of instructor. (Same as MI 515.)

**BIO 529 DEVELOPMENTAL BIOLOGY.** (3)
A review of theories of differentiation, a consideration of the genetic environment, and intensive study of correlative factors in development and differentiation at the tissue, cell and molecule levels. Lectures and assigned readings. Prereq: Any introductory biology course dealing with plants or animals.

**BIO 535 COMPARATIVE NEUROBIOLOGY AND BEHAVIOR.** (3)
The course consists of an introduction to neurophysiology and study of the neural basis of sensory processing and motor patterns. A comparative analysis of the neurobiological basis of behavioral responses will be made, utilizing a broad range of vertebrates and invertebrates. Prereq: BIO 350 or consent of instructor. (Same as PGY 535.)

**BIO 540 FUNDAMENTALS OF RADIATION BIOLOGY.** (2)
Fundamental aspects of radiation biology. Radiation effects on macromolecules, cells, tissues, organs, and organisms. Prereq: One year of biological sciences, one year of chemistry, one year of physics, and MA 113, or equivalent. (Same as RAS/RM 540.)

**BIO 541 RADIOISOTOPE METHODOLOGY.** (2)
Radioisotope techniques and their application in the biological and medical sciences. Radiation safety, calibration and use of radiation detectors, counting statistics, uptake and assay methods, and applications. Laboratory, five hours per week. Prereq: One year biology, CHE 115, PHY 213, and MA 113, or equivalent. (Same as RAS/RM 541.)

**BIO 542 HISTOLOGY.** (5)
An intensive study of vertebrate histology at the tissue, cell and subcell levels with emphasis on human tissues. Some knowledge of cell biology, biochemistry, physiology and anatomy is desirable. The laboratory involves study of prepared microscope slides. Lecture, three hours per week; laboratory, four hours per week. Prereq: BIO 152 or BIO 315 or BIO 340 or consent of instructor.

**BIO 544 EMBRYOLOGY.** (5)
A comparative study of chordate development, stressing morphogenesis and reproduction of vertebrate species and evolutionary changes in ontogeny. Laboratory devoted principally to development of the frog, chick and pig. Three lectures and two two-hour laboratories per week. Prereq: BIO 340.

**BIO 549 COMPARATIVE ENDOCRINOLOGY.** (3)
An introductory and comparative survey of invertebrate and vertebrate endocrine organs and neuroendocrine mechanisms with emphasis on the evolution, chemistry, actions and functions of hormones. Prereq: BIO 350 or consent of instructor. (Same as PGY 549.)

**BIO 550 COMPARATIVE PHYSIOLOGY.** (5)
Physiological mechanisms by which animals cope with different environmental stresses. Osmoregulation, respiration, temperature regulation and tolerance, sensory reception, circulation, etc. Prereq: One year college chemistry, BIO 350 or equivalent, one year college physics or consent of instructor.

**BIO 551 PLANT AUTECOLOGY.** (4)
The effect of physical and biotic factors on plants and environment. Physiological, morphological and anatomical adaptations of plants to the physical factors of the environment are emphasized. Some of the laboratory exercises are carried out in the field. Lecture, three hours; laboratory, two hours. Prereq: BIO 451G or consent of instructor.

**BIO 552 TAXONOMY OF VASCULAR PLANTS.** (4)
A study of the principles and practices of taxonomy and a detailed consideration of the families of vascular plants. Lecture, two hours; laboratory, four hours, including field trips. Prereq: Two semesters of biology or consent of instructor.

**BIO 553 FISH BIOLOGY.** (4)
This course explores the biology of fishes from an evolutionary perspective. Lectures cover physiology, functional morphology, ecology, population biology, behavior, evolutionary relationships, and fisheries biology. Laboratory exercises include development of a fish collection; experiments in fish physiology, behavior and ecology; computer modeling of problems in fisheries biology; and field trips. Lecture, two hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152, and 153 or consent of instructor.

**BIO 554 MAMMALOGY.** (3)
A study of the mammals of the world and their evolution, classification, adaptations and life history, with emphasis on the mammals of Kentucky. Lecture, two hours; laboratory, three hours per week.

**BIO 555 VERTEBRATE ZOOLOGY.** (4)
An intensive survey of the vertebrate classes with emphasis on morphology, classification, phylogeny, trends in evolution, and adaptations. Lecture, two hours; laboratory, two hours. Prereq: BIO 104, 105 or BIO 150, 151, 152, 153 or consent of instructor.

**BIO 557 HERPETOLOGY.** (4)
An intensive survey of amphibians and reptiles of North America, their classification, adaptations and natural history. Emphasis is placed on eastern North American herptefauna, with special emphasis on Kentucky's fauna. Lecture, two hours; laboratory, four hours. Prereq: BIO 104, 105 or BIO 152, 153 or consent of instructor.

**BIO 559 ORNITHOLOGY.** (4)
A study of the life histories, habits, identification, structure, adaptations, and physiology of birds. Special emphasis upon migrations, songs, nests and economic importance of our native birds. Lecture, field excursions, laboratory studies. Prereq: BIO 104, 105 or BIO 150, 151, 152, 153 or consent of instructor.

**BIO 561 MEDICAL ENTOMOLOGY.** (4)
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Prereq: one year of biology. (Same as ENT 561.)

**BIO 562 EXTERNAL MORPHOLOGY OF INSECTS.** (4)
A study of the external structure of insects, including function and variation of form. Prereq: ENT 300 or equivalent. (Same as ENT 562.)

**BIO 563 PARASITOLOGY.** (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Prereq: BIO 150, 151, 152, 153 or consent of instructor. (Same as ENT 562.)

**BIO 564 INSECT TAXONOMY.** (4)
A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: Consent of instructor. (Same as ENT 564.)

**BIO 565 LIMNOLOGY.** (4)
Analysis of fresh-water systems, with special emphasis on aquatic ecology. Lecture, three hours; laboratory, three hours per week. Prereq: CHE 115, PHY 213, and BIO 150-153; or consent of instructor.

**BIO 568 INSECT BEHAVIOR.** (3)
The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Prereq: One year of biology. (Same as ENT 568.)

**BIO 570 INVERTEBRATE ZOOLOGY.** (4)
An intensive survey of the invertebrate phyla, including morphology, classification, phylogeny, general trends in the evolution of organ systems, and adaptations to varied modes of existence. Lecture, two hours; laboratory, four hours. Prereq: BIO 104, 105 or BIO 152, 153 or consent of instructor.

**BIO 571 ALGOLOGY.** (4)
A survey of the physiology, morphology, life histories, taxonomy and evolutionary relationships of the various groups comprising the algae, with the main emphasis upon the freshwater algae. Lecture, two hours; laboratory, four hours. Prereq: Six credits in biology.

**BIO 573 MYCOLOGY.** (4)
A survey of the physiology, morphology, life histories, taxonomy and evolutionary relationships of the various groups comprising the fungi. Lecture, three hours; laboratory, two hours. Prereq: BIO 106, 107 or BIO 152, 153.

**†BIO 574 ANATOMY OF VASCULAR PLANTS.**

**BIO 575 PLANT ANATOMY AND MORPHOLOGY.** (4)
A survey of the diverse structural features of plants and their functional and phylogenetic significance. Emphasis will be on the adaptive design of modern vascular plants as a response to natural and artificial selection. Lecture, three hours; laboratory, two hours per week. Prereq: Introductory biology sequence (six hours) or consent of instructor.

**BIO 580 METABOLISM OF MICROORGANISMS.** (4)
An intensive study of the physiology and biochemistry of microorganisms with special emphasis on anaerobic fermentations, anaerobic and aerobic respiration, oxidation-reduction pathways involving organic and inorganic compounds, and the comparative aspects of procaryotic and eucaryotic energy transducing and utilization mechanisms. Lecture or conference, two hours; laboratory, four hours per week. Prereq: CHE 230, CHE 231, BCH 401G (or equivalent), and an introductory course, with laboratory, in microbiology.

**BIO 582 VIROLOGY.** (3)
Physical, chemical and biological properties of viruses. Modes of replication and control of gene product formation displayed by representative plant, animal, and bacterial viruses. Prereq: One year of biology and one semester of introductory microbiology or equivalent. BIO 404G and biochemistry or equivalent strongly recommended, or consent of instructor.

**BIO 585 PATHOGENIC MICROBIOLOGY.** (3)
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Prereq: BIO 208 or 276 or 476G, and CHE 107. (Same as MI 585.)

**BIO 586 LABORATORY IN PATHOGENIC MICROBIOLOGY.** (2)
Laboratory studies on human and animal pathogenic bacteria, especially their morphological, cultural, and pathogenic properties. Laboratory, four hours per week. Prereq or concur: BIO 585. (Same as MI 586.)

**BIO 595 IMMUNOBIOLOGY.** (2)
Laboratory in immunology and serology. Preparation, standardization, and uses of biological products; serology. Laboratory, four hours. Prereq: BIO/MI 494G or concurrently; or consent of instructor. (Same as MI 595.)

**BIO 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS.** (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BCH/MI/PPA 601.)

**BIO 608 BEHAVIORAL ECOLOGY.** (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as ENT/FOR 608.)

**BIO 609 COMMUNITY AND ECOSYSTEM ECOLOGY.** (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as ENT/FOR 609.)

**BIO 610 POPULATION ECOLOGY.** (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor. (Same as ENT/FOR 610.)

**BIO 611 BIOPATHOLOGY.** (3)
The course will examine the mechanisms by which various biological, chemical and physical agents injure susceptible hosts and the complex biochemical and immunological reactions which occur in response to injury. The host defense mechanisms will be illustrated by an analysis of selected human diseases and animal model systems with particular emphasis on the events at the molecular and cellular level. Prereq: BCH 502 or concurrent, BIO/MI 494G or equivalent and consent of instructor. (Same as MI 611.)

**BIO 612 BIOLOGY OF AGING.** (3)
A multidisciplinary discussion of how the process of aging affects biological systems. Coverage will be quite broad and includes topics such as subcellular and cellular aging, genetics, immunology, anatomy and physiology, animal model of aging, etc. Prereq: Enrollment in a graduate program of a biomedical science department or consent of instructor. (Same as GRN 612.)

**BIO 615 MOLECULAR BIOLOGY.** (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: A course in genetics (e.g. BIO 404G) and a course in nucleic acids and elementary molecular biology (e.g. BCH 502) or consent of instructor. (Same as BCH/MI 615.)

***BIO 618 MOLECULAR NEUROBIOLOGY.** (4)
This course provides knowledge base and analytical skills in the field of molecular neurobiology. An in-depth introduction to current technologies, their rationale and limitations, will be the focus to address normal brain function and neuropathological conditions. Prereq: BCH 501, 502, NEU 605, or consent of instructor. (Same as ANA/MI/PGY 618.)

**BIO 619 CYTOGENETICS.** (4)
Classical, biochemical and molecular studies of the structure and function of eukaryotic chromosomes. Emphasis is placed on the effects of variation in chromosome type, structure and number on Mendelian genetics and in plant and animal breeding. Lecture, three hours; laboratory, two hours. Prereq: AGR/ASC 360 or BIO 404G. (Same as AGR 619.)

***BIO 620 PLANT MOLECULAR BIOLOGY.** (3)
This course is intended to be a treatment of current concepts of plant molecular biology. It will be a literature-based course, supplemented by handouts and reading lists. The course will deal as much as is possible with topics that are unique to plants. Current aspects of molecular biology that are relevant to the course content will be covered in the first part of the course; however, these lectures will not be a review of topics that should have been retained from introductory genetics and biochemistry courses. Also, they will not be a substitute for a molecular biology course. Prereq: One semester of undergraduate genetics and biochemistry or consent of instructor. (Same as AGR 620.)

**BIO 621 TOPICS IN MODERN BIOLOGY (Subtitle required).** (1-3)
A course for students in the biological and related sciences to be taught on various topics by specialists in their fields. Designed to give the student the most up-to-date information on the various topics. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**BIO 622 PHYSIOLOGY OF PLANTS I.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant-cell biology, ion transport, water and translocation, respiration and photosynthesis. Prereq: BIO 430G or equivalent or consent of coordinator. Prereq or concur: BCH 501. (Same as AGR/FOR/HOR 622.)

**BIO 623 PHYSIOLOGY OF PLANTS II.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant hormones, an introduction to plant biotechnology, senescence and abscission, stress physiology, phytochrome-photomorphogenesis-phototropism nitrogen and sulfur metabolism.. Prereq: BIO 430G or equivalent, and BCH 501 or consent of coordinator. (Same as AGR/FOR/HOR 623.)

**BIO 625 INSECT-PLANT RELATIONSHIPS.** (3)
This course examines the natural history, ecology, and evolution of insect/plant relationships. Topics include mechanisms and theory of plant defense, behavioral and physiological adaptations of herbivorous insects, pollination biology, multitrophic-level interactions, causes of insect outbreaks, and applications to managed ecosystems. Critical reading and discussion of current literature is emphasized. Prereq: Two years of college-level biology. (Same as ENT 625.)

**BIO 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY.** (3)
Presentation of theory and experimental application of methods for studying plant metabolism and cell biology. Techniques presented include: UV/Vis spectrophotometry, gel electrophoresis, TLC, GLC, HPLC, use of radioisotopes, gel filtration, isolation and characterization of organelles, mRNA isolation. Prereq: BIO 430G or equivalent or consent of instructor. (Same as AGR 630.)

**BIO 632 ADVANCED CELL BIOLOGY I.** (3)
A molecular level treatment of cell structure and function derived from current experimental approaches. Eukaryotes will be stressed. Topics will usually include membrane structure and function, the cytoskeleton and the extracellular matrix, and bioenergetics. Lectures and discussions with reading in the original literature. Prereq: BIO 404G or equivalent; coreq: BCH 501 or equivalent, or consent of instructor.

**BIO 633 ADVANCED CELL BIOLOGY II.** (3)
This course is a companion to BIO 632. Topics will usually include a molecular level discussion of gene structure, gene expression, and gene regulation, followed by the cell and molecular biology of cell proliferation, development, and differentiation. Lectures and discussions with reading in the original literature. Prereq: BIO 404G or equivalent, BCH 501 or equivalent, or consent of instructor.

**BIO 635 INSECT PHYSIOLOGY AND INTERNAL MORPHOLOGY.** (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, neurophysiology, endocrinology, and digestion. Internal morphology will be studied as it relates to function. Lecture, three hours; laboratory, two hours. Prereq: Consent of instructor. (Same as ENT 635.)

**BIO 638 DEVELOPMENTAL NEUROBIOLOGY.** (3)
An explanation of the processes which contribute to the development of the nervous system. Neurophysiological, cell biological and molecular approaches to cell differentiation, neuronal pathfinding and synapse formation and stabilization will be explored and discussed. Examples will be drawn from both vertebrate and invertebrate preparations. Prereq: BIO 535 or consent of instructor. (Same as ANA/PGY/PSY 638.)

**BIO 639 RESEARCH PROJECTS IN BIOLOGICAL MODELING.** (3)
Mathematical modeling of selected biological systems. Small groups will define the problem, develop a mathematical model, and examine its biological implications. Systems to be modeled may be chosen from any area of the life sciences depending on the experience and interest of the group members. The groups will be supervised by a faculty member from biological sciences and one from mathematics. Prereq: MA/BIO 411 or consent of instructor. (Same as MA 639.)

**BIO 665 INSECT ECOLOGY.** (3)
The biotic and physical factors influencing the distribution and abundance of insects and insect populations. Prereq: Consent of instructor. (Same as ENT 665.)

**BIO 685 ADVANCED IMMUNOBIOLOGY.** (4)
An introductory level graduate course surveying current trends in immunology including the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics and immunopathology. Prereq: BCH 401G, or BCH 501 or 502 or equivalent or consent of instructor. (Same as MI 685.)

**BIO 707 CONTEMPORARY TOPICS IN IMMUNOLOGY.** (2)
This course will deal with controversial and evolving areas in immunology. Lectures in a given topic will be accompanied by student discussion of contemporary literature. Prereq: MI 685 or equivalent or consent of instructor. (Same as MI 707.)

**BIO 720 MICROBIAL STRUCTURE AND FUNCTION.** (4)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as MI 720 and OBI 720.)

**BIO 732 MINERAL NUTRITION OF PLANTS.** (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 430G or equivalent; BCH 501 or consent of instructor. (Same as AGR/HOR 732.)

**BIO 740 MAMMALIAN RADIATION BIOLOGY.** (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Must have consent of instructor, BIO/RM 540 or RM 546 or equivalent background. (Same as RM 740.)

**BIO 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**BIO 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**BIO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**BIO 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**BIO 770 SEMINAR IN BIOLOGY.** (1)
Reports and discussions of current research and literature in biology. Required of all graduate students. May be repeated to a maximum of 8 credits. Prereq: Graduate standing in biological sciences.

**BIO 772 SEMINAR IN MICROBIOLOGY.** (0-1)
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national and international scientific and professional societies and symposia. Required of all graduate students. Two hours per week. May be repeated nine times for a maximum of 10 credits. (Same as MI 772.)

**BIO 773 SEMINAR IN PLANT PHYSIOLOGY.** (1)
Reports and discussions on various topics in plant physiology. May be repeated for a maximum of eight credits. (Same as AGR 773.)

**BIO 774 SEMINAR IN GENETICS.** (1)
Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or consent of instructor.

**BIO 782 ADVANCED VIROLOGY.** (3)
Current trends in virology. Typical topics include DNA tumor viruses, RNA tumor viruses, persistent virus infections, and interference. Emphases of molecular mechanisms. Prereq: BIO 582. Adequate biochemistry and genetics strongly recommended, or consent of instructor.

**BIO 795 RESEARCH IN BIOLOGY.** (1-9)
Independent research work in biology. May be repeated to a maximum of 24 credits. Prereq: Graduate standing in biological sciences.

**BIO 798 RESEARCH IN MICROBIOLOGY.** (1-9)
May be repeated to a maximum of 24 credits. Prereq: Consent of instructor. (Same as MI 798.)

**MICROBIOLOGY**

**MB 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams. (Same as MI 749.)

**MB 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours. (Same as MI 768.)

**MB 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (1-12)
May be repeated indefinitely. (Same as MI 769.)

## BME Biomedical Engineering

**BME 481G TOPICS IN BIOMEDICAL ENGINEERING.** (3)
Detailed investigation of a topic of current significance in biomedical engineering such as: biomaterials, hard or soft tissue biomechanics, rehabilitation engineering, cardiopulmonary systems analysis, biomedical imaging. Prereq: Consent of instructor.

**BME 501 FOUNDATIONS OF BIOMEDICAL ENGINEERING.** (3)
This course demonstrates the application of diverse engineering principles to analysis and understanding of the structure, function, and control of biological systems. Quantitative measurements and analysis of homeostatic, regulatory, transport, biochemical, and biomechanical processes of the human body. Prereq: Engineering standing or consent of instructor.

**BME 530 BIOMEDICAL INSTRUMENTATION.** (3)
Transducers, amplifiers for physiological measurements, biopotential measurements, and selected topics in biomedical instrumentation. Some of the topics include pressure, flow, ultrasonic and nuclear instrumentation and scanning and imaging devices. Lecture, two hours; laboratory, three hours per week. Prereq: EE 305 or equivalent.

**BME 605 BIOMEDICAL SIGNAL PROCESSING I.** (3)
Continuous and discrete signals, sampling, Fourier Transform, LaPlace Transform, Z-Transform, correlation and spectral analysis, digital filters. Prereq: EE 305 or equivalent, BME 501 or PGY 502.

**BME 610 BIOMEDICAL CONTROL SYSTEMS I.** (3)
Homeostatic mechanisms, input-output analysis, steady state and transient response, feedback concepts, system identification and simulation from actual operating data. Prereq: PGY 502 and ME 440 or equivalent.

**BME 615 BIOMEDICAL SIGNAL PROCESSING II.** (3)
Stochastic processes, Fourier-based spectral analysis and linear system identification, modern spectral estimation (AR, MA, ARMA), parametric transfer function estimation, time-frequency analysis of nonstationary signals. Prereq: BME 605, BME 610, EE 640 recommended.

**BME 620 BIOMEDICAL CONTROL SYSTEMS II.** (3)
Biomedical Systems Models, dynamic programming, variational approach to optimal control problems, real-time parameter estimation, adaptive control methods and biomedical applications. Prereq: BME 605, BME 610.

**BME 625 ANALYSIS OF NONLINEAR BIOMEDICAL SYSTEMS.** (3)
Basic concepts of nonlinear systems: iterated maps, dynamical flows, bifurcations, chaos. Modelling and analysis of nonlinear systems: Wiener kernels, white-noise identification, polyspectra, nonlinear time-series models. Extensive discussion of selected biomedical applications. Prereq: BME 610, BME 615 or EE 650 recommended.

**BME 630 MAGNETIC RESONANCE IN BIOMEDICINE.** (3)
Introductory course on the fundamental principles of magnetic resonance imaging and spectroscopy, and its uses in biomedical engineering. Topics include: quantum mechanical and classical descriptions of nuclear magnetic resonance, relaxation theory, signal generation, the Bloch equations and solutions, signal processing and encoding. Imaging and spectroscopy applications will be introduced. Several practical demonstrations will be given. Strong engineering/physics and mathematics background is necessary. Prereq: Undergraduate degree in engineering or physics.

**BME 635 MAGNETIC RESONANCE INSTRUMENTATION AND MEASUREMENT.** (3)
Laboratory course on the fundamentals of magnetic resonance, instrumentation, measurement, and its biomedical applications. Begins with the nuclear induction experiment and ends with design and implementation of experiments to address engineering and physics problems that relate to the medical field. Instrumentation hardware and software will be taught. Strong engineering/physics and mathematics background is necessary. Prereq: BME 630 or permission of instructor.

**BME 641 PRACTICES OF BIOMEDICAL ENGINEERING.** (1)
Survey of the regulatory, legal, managerial, financial and medical environment in which the biomedical engineering profession is practiced. This course attempts to provide the interface between the theoretical course material taught in the BME curriculum and the realities of the diverse multidisciplinary world that is unique to the biomedical engineer. Outside guest speakers, in class lectures, and case history analyses will be used. Group term project is mandatory. Prereq: Engineering baccalaureates receive preference.

**BME 650 MUSCULOSKELETAL BIODYNAMICS.** (3)
Study of the mechanical and electrical properties and viscoelastic nature of the musculoskeletal system and its components. Engineering analysis of system's dynamic response to stress. Mathematical modeling of system and components. Prereq: PGY 502, EE 305, or consent of instructor.

**BME 661 BIOMATERIALS SCIENCE AND ENGINEERING.** (3)
Study of biological and man-made materials that perform, improve, or restore natural functions. Structure and properties of connective tissue and commonly implanted metals, ceramics, and polymers; biocompatibility of materials used in orthopedic, soft tissue, and cardiovascular applications. Prereq: Undergraduate engineering degree or consent of instructor.

**BME 662 TISSUE-IMPLANT INTERFACE.** (3)
Study of the interface between implants and host tissues from both the materials and biological perspective. Structure of the tissue-implant interface; surface characterization of biomaterials; protein adsorption; mechanisms of cell responses; and methods for controlling the tissue-implant interface, with emphasis on orthopedic and cardiovascular applications. Prereq: BME 661.

**BME 670 BIOMECHANICS I.** (3)
Application of laws of mechanics to study the behavior of human organ systems. Stress-strain analysis of soft and hard body tissues with emphasis on pulmonary and musculoskeletal systems. Viscoelastic properties. Prereq: PGY 502, EM 302 or consent of instructor.

**BME 672 BIOMECHANICS II.** (3)
Application of laws of mechanics to study the behavior of human organ systems. Whole body biodynamics: analysis of gait. Fluid mechanics of circulation. Steady and pulsatile flow in large blood vessels and microcirculation. Rheology of blood and other biological fluids. Prereq: PGY 502, ME 330 or consent of instructor.

**BME 680 ADVANCED TOPICS IN BIOMECHANICS.** (3)
Flow limitation in compliant tubes. Impedance concepts in lung airways and vessels. Fluid mechanics of lung microcirculation. Morphological analysis of bifurcating networks. Fractal analysis of blood flow. Stress wave in tissue. Structural analysis of body organs. Applications to the lungs, cardiovascular and skeletal systems. Prereq: BME 670 and BME 672 or consent of instructor.

**BME 682 ADVANCED TOPICS IN ORTHOPAEDIC BIOMECHANICS.** (1)
Seminars in Orthopaedic Biomechanics Research exploring current clinical problems and engineering solutions. Lecture, three hours per week. Prereq: BME 670 and BME 672.

**BME 685 BIOFLUID MECHANICS.** (3)
Review of the rheology of circulatory processes in the body. Special emphasis on cardiovascular dynamics: pulsatile pressure and flow, vascular impedance, wave propagation/reflection, cardiac dynamics. Special topics. Lecture, three hours with periodic lab demonstrations. Prereq: PGY 502 or equivalent, BME 672, or consent of instructor.

***BME 690 RESEARCH IN BIOMEDICAL ENGINEERING (Subtitle required).** (1-3)
Individual study related to a special research project. Intended for M.S. candidates who want a research project experience independent of their M.S. thesis work. This course cannot be used to satisfy residency credit requirements. Lecture, 1-3 hours; laboratory, 3-6 hours per week. May be repeated to a maximum of six credits. Prereq: Consent of instructor and graduate standing in BME.

***BME 699 SPECIAL TOPICS IN BIOMEDICAL ENGINEERING (Subtitle required).** (1-3)
Special topics in biomedical engineering, addressed primarily in a lecture/discussion format. Presentation of focussed or specialized topics that are not available in standard courses. Lecture, three hours; laboratory 0-2 hours per week. May be repeated to a maximum of nine credits. Prereq: Consent of instructor and graduate standing in BME.

**BME 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**BME 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**BME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**BME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**BME 772 SEMINAR.** (0)
Review of current literature in the field of biomedical engineering, general discussion and presentation of papers on research in biomedical engineering. Lecture, one hour per week. Required for all graduate students in biomedical engineering.

***BME 781 SPECIAL PROBLEMS IN BIOMEDICAL ENGINEERING (Subtitle required).** (1-3)
Discussion of advanced and current topics in biomedical engineering. Individual work on research problems of current interest. May be repeated to a maximum of nine credits. Lecture/laboratory hours, variable. Prereq: Approval of instructor.

## BUS Business and Office Technology

(See also Vocational Education.)

**BUS 116 KEYBOARDING.** (1)
Development of keyboarding skills for operating typewriters, CRT's, and equipment with keyboards; emphasis on touch system for accuracy and control of alphabetic, numeric, symbol, and command keys. (No credit for those with previous typewriting instruction.)

**BUS 117 TYPEWRITING.** (2)
Principles and techniques of typewriting are integrated with a thorough study of form, style, and arrangement of typewritten materials. Prereq: BUS 116 or equivalent.

**BUS 118 ADVANCED KEYBOARDING AND WORD PROCESSING.** (3)
A study of advanced principles and techniques of keyboarding and word processing with emphasis upon planning and organizing a wide range of business communications media and upon meeting production standards essential to the operation of modern offices.

**BUS 160 BASIC BUSINESS CONCEPTS FOR OFFICE PERSONNEL.** (3)
Introduces the terminology of business and orients the student to other business and office education courses; provides an understanding of the interrelationships which exist between consumers and businesses and the impact of the activities of both groups on the economy. Major emphasis is upon interpreting and using this understanding in an office career.

**BUS 204 OFFICE FINANCIAL APPLICATIONS.** (3)
Basic financial applications required for office procedures and planning. Applications include banking, pricing, interest and installment credit, taxes, insurance, capital financing, and annuities. Touch 10-key keyboarding utilizing computer software will be taught. Lecture, three hours; laboratory, one-half hour per week.

**BUS 209 OFFICE ACCOUNTING PRINCIPLES AND APPLICATIONS.** (4)
A study of accounting systems of the professions, small businesses, and institutions. Special applications and practice sets will be utilized on automated equipment.

**BUS 212 ACCELERATED SHORTHAND.** (3)
Reinforcement of shorthand principles and theory; development of dictation speeds and transcription skills. Prereq: BUS 112 and 117, or consent of instructor.

**BUS 519 RECORDS MANAGEMENT.** (3)
The underlying principles and procedures of records management; information storage and retrieval systems; integration and control of records systems and programs. Prereq: BUS 118.

**BUS 556 BUSINESS REPORTS AND COMMUNICATIONS.** (3)
Written and oral communication relating to current problems in business investigated by various research procedures with major emphasis placed upon sources of data, compilation and arrangement of data, documentation, bibliography, and effective presentation. Prereq: BUS 315.

## CD Communication Disorders

**CD 277 INTRODUCTION TO DISORDERS OF SPEECH AND LANGUAGE.** (3)
An introduction to developmental aspects of speech and language. Definitions, symptomologies, and etiologies of articulation, language, fluency and voice disorders.

**CD 285 APPLIED PHONETICS.** (3)
Study of the phonetic structure of the English language with requirement of mastery of International Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as COM 285.)

**CD 378 ANATOMY AND PHYSIOLOGY OF SPEECH.** (3)
A detailed investigation of structures and functions supporting speech production: respiration, phonation, articulation, and resonance. Neural bases of speech and language will also be introduced. Prereq: CODI major or permission of instructor.

**CD 379 FUNDAMENTALS OF HEARING.** (3)
Investigation of the anatomical, physiological, and neurological bases of hearing; physics of sound; and elementary psychoacoustics. Prereq: CODI major or permission of instructor.

**CD 380 PATHOLOGIES OF THE AUDITORY SYSTEM.** (3)
Detailed investigation of various definitions, symptomatologies, etiologies, and treatments of hearing impairment. Surveys of definitions, symptomatologies, etiologies, and treatments of central and functional hearing impairment. Prereq: CD 379 or permission of instructor.

**CD 382 CLINICAL ORIENTATION IN SPEECH-LANGUAGE PATHOLOGY I.** (3)
A lecture-laboratory experience designed to orient the student to the professional activities in speech-language pathology. Lecture: one hour; laboratory: four hours per week. Prereq: CD 277, CODI majors only.

**CD 383 CLINICAL ORIENTATION IN SPEECH-LANGUAGE PATHOLOGY II.** (3)
A lecture-laboratory experience designed to orient the student to the professional activities in speech-language pathology. Lecture: one hour; laboratory: four hours per week. Prereq: CD 382 or permission of instructor; CODI majors only.

**CD 384 INTRODUCTION TO DIAGNOSTIC PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY.** (3)
Introduction to the principles, techniques, and tools used to develop and implement a diagnostic protocol. Prereq: CD 588 or permission of instructor; CODI majors only.

**CD 511 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE SEVERELY HANDICAPPED.** (3)
An introduction to communication development and intervention for language disordered individuals whose language age is at or below four years, including cognitive, social, auditory, visual, and motor components. Topics include prerequisites for language, normal communication development, evaluation of language functioning, and approaches to altering communication behavior. Prereq: CD 277 or EDS 375 or consent of instructor. (Same as EDS 511).

**CD 512 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE MILDLY HANDICAPPED.** (3)
An introduction to the characteristics of receptive and expressive language disorders in language-disordered children whose language age is four years or higher, including auditory, visual, cognitive, and motor components. Topics include language development, language disorders, language evaluation, and techniques for receptive and expressive language stimulation. Prereq: CD 277 or EDS 375 or permission of instructor. (Same as EDS 512).

**CD 514 LANGUAGE DEVELOPMENT THROUGH THE LIFESPAN.** (3)
An introduction to the normal development of language in individuals from birth to advanced age. Topics include theories of language acquisition; prelinguistic development; development in each of the language domains (phonology, semantics, morphology and syntax, and pragmatics); the relationships between oral language, written language, and academic progress; and cultural differences. Prereq: CD 277 or permission of instructor.

**CD 515 LANGUAGE ASSESSMENT AND REMEDIATION.** (3)
An introduction to the assessment and remediation of language disorders in individuals from birth to adulthood. Topics include characteristics of language disorders, assessment of prelinguistic and linguistic skills, methods of language remediation, and techniques for stimulating the development of prelinguistic and linguistic skills. Prereq: CD 514 or permission of instructor.

**CD 521 NONSPEECH COMMUNICATION.** (3)
Addresses the use of nonspeech communication systems with moderately to severely handicapped individuals. This course encompasses two basic components: 1) a lecture/discussion component which examines the full range of nonspeech communication systems, including evaluation and training considerations, and 2) a manual sign component which provides students with a basic functional receptive and expressive manual sign vocabulary. Prereq: EDS 375 or equivalent or permission of instructor.

**CD 555 PROBLEMS IN COMMUNICATION DISORDERS (Subtitle required).** (1-4)
In-depth study of a current topic or issue in communication disorders. A specific topic will be assigned each time the course is offered. May be repeated to a maximum of nine credits.

**CD 585 SPEECH SCIENCE.** (3)
To provide basic information concerning the physics of sound and the scientific bases of speech production and perception. Emphasis is placed on the acoustic nature of speech and the perception of spoken information. Instrumentation in speech science will be demonstrated. Prereq: CODI major or permission of instructor.

**CD 587 AUDIOMETRY.** (3)
Introduction to basic clinical techniques for assessing hearing acuity. Topics include principles and techniques of: school age identification audiometry and hearing conservation programs, pure tone air and bone conduction threshold testing, speech audiometry, masking, and audiometric calibration. Prereq: CD 380 or permission of instructor.

**CD 588 DISORDERS OF ARTICULATION.** (3)
Analysis, identification and management of articulation disorders. Application of physiological phonetics to remediation is included. Prereq: CD 285 and CD 277, or permission of instructor.

**CD 589 CRANIOFACIAL ANOMALIES.** (3)
Analysis, identification, and management of communication deficits associated with craniofacial abnormalities. Prereq: CD 378 and CD 588, or permission of instructor.

**CD 591 AURAL REHABILITATION.** (3)
Introduction to management strategies, exclusive of language, for the hearing impaired. Topics include: variables affecting hearing handicap; hearing aid characteristics, selection, and orientation; acoustic and visual aspects of speech; auditory and visual perception and training; speech conservation. Prereq: CD 587.

**CD 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED.** (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

**CD 647 ADVANCED LANGUAGE DISORDERS.** (3)
Developmental and structured approaches to language evaluation and remediation. Assessment of language levels, knowledge of the language system and variables influencing language functioning in children in relation to devising intervention strategies. Presentation of remediation techniques for children aged 0 to 21. Prereq: CD 514 and CD 515, or permission of instructor.

**CD 655 ADVANCED DIAGNOSTIC PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY.** (3)
Study of the principles of assessment and a critical review of existing standardized and non-standardized assessment tools in the field of speech-language pathology. Emphasis on selection of assessment tools for clients from diverse ethnic backgrounds with a variety of communication disorders, administration of selected tools, and organization of diagnostic information. Prereq: CD 384 or permission of instructor; CODI majors only.

**CD 656 CLINICAL PRACTICUM IN DIAGNOSTIC PROCEDURES FOR SPEECH-LANGUAGE PATHOLOGY.** (1)
Experience in the assessment of speech and language skills in children and adults. Emphasis on organization of all behavioral and test data and on report writing. Laboratory, two hours per week. May be repeated to a maximum of two credits. Prereq: CD 384 or equivalent; permission of instructor.

**CD 657 CLINICAL PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY.** (3)
Experience with children and adults in the management of speech and language disorders. May be repeated to a maximum of twelve credits. Prereq: CD 382 and CD 383 or equivalent; permission of instructor.

**CD 658 CLINICAL PRACTICUM IN AUDIOLOGY.** (1)
Experience in management and/or basic evaluation of hearing impairment. Primary emphasis on planning and executing management techniques. May be repeated to a maximum of three credits. Prereq: CODI majors only. CD 587, CD 591, and CD 515, or equivalent; permission of instructor.

**CD 659 CLINICAL ROTATION IN SPEECH-LANGUAGE PATHOLOGY.** (1-12)
Supervised clinical experience in the evaluation and management of communication disorders of children and adults who are served by agencies other than the University Speech-Language-Hearing Clinic. Up to forty laboratory hours per week (at site all day). May be repeated up to 36 hours. Prereq: CODI Majors only. Must successfully complete nine hours of clinical practicum (graduate level) and consent of instructor.

**CD 670 DISORDERS OF PHONATION.** (3)
Analysis, identification, and management of disorders of phonation and resonance, including the specific communication problems of the laryngectomized adult. Prereq: Permission of instructor.

**CD 672 APHASIA AND RELATED NEUROGENIC DISORDERS OF LANGUAGE.** (3)
Analysis, identification, and management of neurogenic disorders of language and cognition. Primary emphasis is given to the acquired disorders of aphasia, traumatic brain injury, dementia, and right hemisphere dysfunction. Prereq: CD 378, CD 514, CD 515, or permission of instructor.

**CD 673 NEUROGENIC DISORDERS OF SPEECH.** (3)
Analysis, identification and management of neurogenic disorders of speech and related disorders. Primary emphasis is given to dysarthria, apraxia of speech, and dysphagia. Prereq: CD 378, CD 588 or permission of instructor.

**CD 674 DISORDERS OF FLUENCY.** (3)
Analysis, identification and management of fluency disorders. Prereq: Permission of instructor.

**CD 701 RESEARCH METHODOLOGY IN COMMUNICATION DISORDERS.** (3)
Principles and methods for designing research in communication sciences and disorders. Topics include: introduction to the scientific method, research designs, measurement techniques, formulating research questions, writing and evaluating research reports, and ethics of research. Prereq: Graduate standing in Communication Disorders.

**CD 702 SEMINAR IN SPEECH PATHOLOGY (Variable topic).** (1-3)
Advanced coverage of the clinical and research literature on the etiology, description, assessment, and management of specific speech and language disabilities. The semester topic will be rotated. Topics will include: stuttering, developmental language disabilities, cleft palate, cerebral palsy, etc. May be repeated to a maximum of nine credits.

**CD 789 INDEPENDENT STUDY IN COMMUNICATION DISORDERS.** (1-6)
Independent study for graduate students with an interest in a specific problem in communication disorders. May be repeated to a maximum of 12 credits. Lecture, 1-6 hours; laboratory, 2-12 hours per week. Prereq: Graduate status and consent of instructor.

## CE Civil Engineering

**CE 106 COMPUTER GRAPHICS AND COMMUNICATION.** (3)
Introduction to the use of scale, dimensioning, and orthographic projections. Graphical solution of spatial problems. Integrated application of computer graphics. Lecture, two hours; laboratory, four hours per week. Prereq: High school algebra and trigonometry or equivalent.

**CE 110 PLANE SURVEYING.** (3)
Principles, field practice and calculation. General use and care of surveying instruments. Lecture, two hours; laboratory, three hours. Prereq: proficiency in trigonometry (by examination in class) and prereq or concur: MA 113.

**CE 121 INTRODUCTION TO CIVIL ENGINEERING SYSTEMS.** (3)
An introduction to the civil engineering profession from a systems point of view and the use of computer hardware and software in CE systems analysis and design. A project will be used to illustrate the conception, design, construction and operation processes. Other small projects in transportation, structural, foundation and water resources systems will make use of existing computers software packages and spreadsheets. Emphasis throughout the course will be on computational, oral, and writing skill improvement.

**CE 199 TOPICS IN CIVIL ENGINEERING (Subtitle required).** (1-4)
An experimental, topical, departmental, or interdisciplinary course devoted to a special topic of current interest to civil engineering and approved by the chairperson of the department of civil engineering and the dean of the college. May be repeated to a maximum of eight credits, but not more than four credits may be earned under the same title. Prereq: Consent of instructor.

**CE 211 SURVEYING.** (4)
A comprehensive course in the art and science of surveying as applied to civil and mining engineering, including the use and care of surveying instruments; measurement of horizontal and vertical distances, angles and directions; collection of ground and underground data for the design and layout of roads, buildings, various mineral workings and other structures; and some aspects of the precise determination of position and direction for survey control. Lecture, three hours; laboratory, three hours per week. Prereq: CE 106, CE 121 or MNG 102, MA 114. (Same as MNG 211.)

**†CE 215 ROUTE, CONTROL AND TOPOGRAPHIC SURVEYING.**

**CE 250 TECHNOLOGY AND THE ENVIRONMENT.** (3)
An introduction to the issues associated with environmental pollution and the role of technology in the solution to environmental problems. Topics to be discussed include air pollution, water treatment, water pollution sources and control measures, environmental concerns arising from the use of nuclear and fossil fuels, solid and hazardous waste management, and economic and regulatory constraints. This course may not be taken by CE majors.

***CE 303 INTRODUCTION TO CONSTRUCTION ENGINEERING.** (3)
The study of the planning, administration, and management of construction projects and an introduction to the methodology utilized in executing specified designs. Emphasis is placed on the organization of construction firms, development of construction documents, theory of estimating and quantity take-offs, contractual and management systems, scheduling project administration, and inspection of construction operations. Prereq: Registration in College of Engineering.

***CE 331 TRANSPORTATION ENGINEERING.** (3)
An introduction to transportation engineering. Development of transportation systems in the United States. Route geometrics and design. Traffic flow characteristics and control. Planning financing and economic analysis of transport facilities. Prereq: CE 211 or CE 215 and registration in the College of Engineering.

***CE 341 FLUID MECHANICS I.** (3)
Fundamental principles of fluid flow. Includes fluids at rest (hydrostatics) and fluids in motion. Continuity, momentum and energy relations, ideal and viscous fluids. Emphasis on incompressible fluids (liquids). Prereq: ME 220 and registration in the College of Engineering.

***CE 381 CIVIL ENGINEERING MATERIALS.** (3)
A study of the microscopic and macroscopic structures and properties of materials used in civil engineering construction with emphasis on the relationships of their physical and mechanical properties to engineering design and application. Written reports and oral presentation of results will be required. Lecture, two hours; laboratory, three hours per week. Prereq: EM 302 and registration in College of Engineering.

***CE 382 STRUCTURAL MECHANICS.** (3)
Analysis of statically determinate structures including trusses, beams, cables, arches and frames. Influence lines for truss and beam structures. Approximate analysis of statically indeterminate structures. Displacement calculations and introduction to statically indeterminate structural analysis. Prereq: EM 302 and registration in the College of Engineering.

**CE 395 INDEPENDENT WORK IN CIVIL ENGINEERING.** (1-6)
Individual work on some selected problem in the field of civil engineering. May be repeated for a maximum of six credits. Prereq: Engineering standing, consent of department chairperson and the instructor.

**CE 401 SEMINAR.** (1)
A discussion of the ethical and professional aspects of civil engineering practice. Concepts of loss prevention and conflict resolution. Structured small group discussion, oral presentations, and role playing. Lecture, two hours per week. Prereq: Senior classification and engineering standing.

**CE 403 CONSTRUCTION METHODOLOGY.** (3)
A study of the methodology used in construction, with an emphasis on the selection and application of resources: labor, materials, equipment, money and time. The importance of cost and quality is stressed. Weekly lab periods are used to acquaint the student with actual construction documents and to provide supervised work sessions in plan reading and basic estimating. Lecture, two hours; laboratory, three hours per week. Prereq: CE 303, CE 381, engineering standing.

**CE 421 CIVIL ENGINEERING SYSTEMS ANALYSIS.** (3)
An introduction to systems analysis and operations research, with applications in civil engineering. Economics analysis, search methods, linear and nonlinear programming network analysis and dynamic programming, probability and statistics, regression analysis and simulation. Emphasis on setting up mathematical models to analyze civil engineering systems. Prereq: CS 221 or CS 223 and engineering standing.

***CE 441 FLUID MECHANICS II.** (3)
Application of basic fluid mechanics to problems of importance to civil engineering practice. This includes pipe flow (pipe networks), open channel flow, culvert flow, flow through meters, pumps, and turbines. Prereq: CE 341, CS 221 or CS 223 and engineering standing.

***CE 451 WATER QUALITY ENGINEERING.** (3)
Survey of water resources field with emphasis upon water, sewage and industrial waste treatment theory and practices. Prereq: CE 341 and engineering standing or consent of instructor.

**CE 461G HYDROLOGY.** (3)
A study of the factors affecting the occurrence, movement and utilization of water including meteorological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, and ground water management. Prereq: CE 341, engineering standing or consent of instructor.

***CE 471G SOIL MECHANICS.** (3)
A study of the strength, deformation and hydraulic properties of soils and their relationship to settlement, stress distribution, earth pressure, bearing capacity and slope stability. Written and oral presentations of student projects will be required. Lecture, two hours; laboratory, three hours per week. Prereq or concur: GLY 240, EM 302 and engineering standing or consent of instructor.

**CE 482 ELEMENTARY STRUCTURAL DESIGN.** (3)
Application of principles of solid mechanics to the design of steel, timber, and reinforced concrete members and structures. Emphasis on basic ideas and their application to practical design of relatively simple structures according to the building code. Credit may not be used to satisfy degree requirements if credit is earned in CE 485G, or CE 486G, or CE 487G. Prereq: CE 382 and engineering standing.

**CE 485G DESIGN OF TIMBER STRUCTURES, FORMWORK AND FALSEWORK.** (3)
Behavior and design of structural components in timber; design of connections; design of complete timber structures, formwork for concrete, and falsework for support in construction and mining operations. Prereq: CE 382, engineering standing or consent of instructor.

**CE 486G REINFORCED CONCRETE.** (3)
Theory and design of beams, slabs, girders and columns as related to building frames and bridges. Introduction to pre-stressed concrete, elastic design and ultimate strength design. Prereq: CE 382 and engineering standing or consent of instructor.

**CE 487G STEEL STRUCTURES.** (3)
Design criteria and methods. Behavior and design of structural steel beams, columns, beam-columns, and bolted and welded connections. Analysis and design of composite steel/concrete beams. Torsion of open and closed sections. Considerations of instability of beams, columns, and plates in design. Plastic analysis and design of continuous structures. Introduction to computerized structural analysis and design. Prereq: CE 382 and engineering standing or consent of instructor.

***CE 503 CONSTRUCTION ESTIMATING.** (3)
This course investigates the principles of predicting and controlling the cost of construction projects. Items studied include feasibility studies, preliminary and detailed estimating, budgeting, monitoring and variance analysis. Computer applications for construction estimating will be stressed. Prereq: CE 403 and engineering standing or consent of instructor.

**CE 505 CONSTRUCTION PROJECT PLANNING AND MANAGEMENT.** (3)
A study of the planning process and fundamental management procedures for construction projects. Special attention given to: planning of methods and resources; use of schedules; monitoring time; managing cash flow and costs; and overall project administration and record keeping. Prereq: CE 403 and engineering standing; or consent of instructor.

**CE 506 THE ENGINEER, THE LAW, AND THE ENVIRONMENT.** (3)
The impact of engineering activities on the environment and the resulting legal implications. The interrelationships between engineering and law as they affect such areas as water quality and pollution, air quality and pollution, noise pollution, visual pollution, land use planning and energy considerations and the conservation and (or) preservation of natural resources. Prereq: Engineering standing, or consent of instructor.

**CE 511 PHOTOGRAMMETRY.** (3)
Fundamentals of the photogrammetric method including geometry of the single photographs and terrestrial photographs; planning the photographic mission and ground control for mapping and an introduction to analytic photogrammetry, stereo-phogrammetric plotting instruments, photo interpretation and remote sensing. Applications to problems in engineering. Geography, geology and other disciplines are emphasized. Lecture, two hours; laboratory, three hours per week. Prereq: MA 113, engineering standing and consent of instructor.

**CE 517 BOUNDARY LOCATION PRINCIPLES.** (3)
Procedures for locating or relocating the boundaries of real property; records searching, technical aspects of field work, preparation of descriptions and survey reports, land data systems, legal aspects, special problems. Prereq: CE 211 or CE 215, engineering standing or consent of instructor.

**CE 518 ADVANCED SURVEYING.** (3)
Principles of precise survey procedures in triangulation, trilateration, traverse and leveling; adjustment computations; theory and practice of electronic distance measurement; basic geodesy and state plant coordinate systems; applications to the horizontal and vertical control of engineering projects: review of modern land surveying problems and procedures. Lecture, two hours; laboratory, three hours per week. Prereq: MA 214, CE 211 or CE 215, and engineering standing.

**CE 521 ENGINEERING ECONOMY.** (3)
Economic evaluation and financial analysis of engineering alternatives in which the goal of economic efficiency is applied to engineering design. Prereq: Engineering standing.

**CE 531 TRANSPORTATION SYSTEMS OPERATIONS.** (3)
Analysis of transportation infrastructure problems through diagnostic study of existing transportation systems operations with emphasis on capacity and safety objectives. Engineering practice oriented toward open-ended solutions. Prereq: CE 211 or CE 215, CE 331, engineering standing.

**CE 533 RAILROAD FACILITIES DESIGN AND ANALYSIS.** (3)
Principles of railroad location, construction, rehabilitation, maintenance, and operation with emphasis on track structure design and analysis, bridges and bridge loading, drainage considerations, track geometry effects, and operating systems analysis. Prereq: CE 331, CE 381, CE 382; concur: CE 471G and engineering standing.

***CE 534 PAVEMENT DESIGN, CONSTRUCTION AND MANAGEMENT.** (3)
Design, analysis, construction, and management of flexible and rigid pavements. Stresses and strains, pavement materials, subgrade soil stabilization, bases and subbases, quality control, drainage, pavement-type selection, and pavement management. Prereq: CE 381, prerequisite or concurrent CE 471G, and engineering standing.

***CE 539 TRANSPORTATION SYSTEMS DESIGN.** (4)
Introduction to the processes and procedures for transportation systems design. Policy design, functional design and sizing, operation and schedule design, location and geometric design, supporting structures design as they individually and collectively affect the efficacy of transportation systems. Written and oral presentation of student projects will be required. Lecture, three hours; laboratory, three hours per week. Prereq: CE 211 or CE 215 and CE 331 and engineering standing.

**CE 541 HYDRAULIC STRUCTURES.** (3)
Structural and hydraulic analysis required for the design of concrete and earth dams and appurtenant structures. Prereq: CE 549, engineering standing or consent of instructor.

**CE 542 APPLIED FLUID MECHANICS.** (3)
Continuation of ME 330. Problem solving for ideal and viscous flows for design and research oriented purposes. Development and application of basic equations to engineering problems with emphasis on numerical modeling using computers. Prereq: ME 330 or CE 341, CS 221, engineering status. (Same as ME 529.)

***CE 546 FLUVIAL HYDRAULICS.** (3)
Rainfall physics, principles of erosion on upland areas and construction sites, stable channel design in alluvial material, mechanics of sediment transport, river mechanics, reservoir sedimentation. Prereq: CE 461G, ME 330 and engineering standing. (Same as AEN 536.)

**CE 549 ENGINEERING HYDRAULICS.** (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Prereq: CE 341, CE 441 and engineering standing. (Same as AEN 545).

**CE 552 WATER QUALITY CONTROL LABORATORY I.** (3)
Lectures and laboratory practice in principles, application and interpretation of analytical tests used in water quality control research and process control. Lecture, two hours; laboratory, three hours. Prereq: Engineering standing and consent of instructor.

***CE 556 SOLID AND HAZARDOUS WASTE MANAGEMENT.** (3)
Study of the generation and management of solid and hazardous wastes. Application of engineering principles to the collection, transport, processing, resource recovery and ultimate disposal of these wastes. Prereq: CE 471G, CE 521 or consent of instructor and engineering standing. (Same as AEN 556).

**CE 559 WATER QUALITY CONTROL FACILITIES DESIGN.** (3)
Application of theoretical principles to the functional and hydraulic design of water quality control facilities. Prereq: CE 341, CE 441, CE 451 and engineering standing.

***CE 569 WATER RESOURCES SYSTEM DESIGN.** (4)
Application of principles of hydrology, hydraulics, and environmental engineering in the planning, design, and analysis of a comprehensive water resource project. Emphasis on basic ideas and their application to the practical design of water supply, distribution, collection and treatment facilities. Written and oral presentation of student projects will be required. Lecture, three hours; laboratory, three hours per week. Prereq: CE 451, 461G, 549 and engineering standing. (Same as AEN 569).

**CE 579 GEOTECHNICAL ENGINEERING.** (3)
Application of the principles of soil mechanics and structural mechanics to the design of retaining walls, bracing for excavations, footings, mat and pile foundations and to the analysis of the stability of earth slopes. Prereq: CE 471G and engineering standing.

***CE 580 BITUMINOUS MATERIALS AND MIXTURES.** (3)
Production, specifications, and tests of bituminous materials and paving mixtures; design and evaluation of asphalt concrete for construction and maintenance; inspection, quality control of street, parking and highway paving mixtures. Lecture, two hours; laboratory, three hours per week. Prereq: CE 381 and engineering standing; concur: CE 471G.

**CE 581 TRANSPORTATION ENGINEERING MATERIALS.** (3)
Soil stabilizers and construction, asphalt and Portland cement concrete paving materials. Methods of material characterization in pavement design. Lecture, two hours; laboratory, three hours per week. Prereq: CE 381; concur: CE 471G.

**CE 582 ADVANCED STRUCTURAL MECHANICS.** (3)
Approximate methods of frame analysis; energy principles; flexibility and stiffness methods for trusses, frames, arches, nonprismatic members and flexible connections/supports; influence lines for statically indeterminate structures; introduction to plastic analysis; and use of available computer programs for structural analysis and matrix operations. Prereq: CE 382 and engineering standing.

***CE 583 SUSPENSION BRIDGES.** (3)
Analysis and design of suspension bridges. Derivation of governing equations and application to existing structures. Prereq: CE 487G and engineering standing.

**CE 586 PRESTRESSED CONCRETE.** (3)
Fundamental basis and underlying principles for the analysis and design of prestressed concrete. Working stress and ultimate strength design methods, full and partial prestressing. Design for shear and torsion, deflection, crack control, and long-term effects, and prestress losses. Composite beams, continuous beams, slabs, short and slender columns, precast structures and their connections. Prereq: CE 486G and engineering standing.

**CE 589 DESIGN OF STRUCTURAL SYSTEMS.** (4)
Design loads and structural systems. Systems concepts in planning analysis, design and construction of structures. Buildings, bridges, special structures and foundations. Computer aided design and drafting (CADD) utilizing microcomputers and the mainframe computer. Written and oral presentations of student projects will be required. Lecture, three hours; laboratory, three hours per week. Prereq: CE 487G and CE 486G and engineering standing or consent of instructor; Coreq: CE 579.

**CE 599 TOPICS IN CIVIL ENGINEERING (Subtitle required).** (1-4)
A detailed investigation of a topic of current significance in civil engineering such as: design of small earth dams, man and the environment, drilling and blasting, scheduling construction operations, construction equipment and methods, traffic safety, optimum structural design, environmental impact analysis, systems analysis in civil engineering, motor vehicle noise and its control. May be repeated to a maximum of eight credits, but only four credits can be earned under the same title. A particular topic may be offered at most twice under the CE 599 number. Prereq: Variable; given when topic is identified; plus engineering standing.

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in civil engineering or its equivalent.

**CE 601 CONSTRUCTION EQUIPMENT.** (3)
Analysis of construction equipment use and economics. Selection and matching equipment for productivity and cost effectiveness. Mathematical simulation of construction operations. Prereq: CE 403, CE 503, or consent of instructor.

**CE 602 CONSTRUCTION ADMINISTRATION.** (3)
Administration of construction companies and projects, organization, economics, material management, productivity models, labor and equipment tracking, quality control and managerial accounting. Construction labor relations, claims and construction financing are also discussed. Prereq: CE 403, CE 506, or consent of instructor.

**†CE 612 TERRAIN ANALYSIS.**

**CE 631 URBAN TRANSPORTATION PLANNING.** (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Prereq: CE 531 or equivalent and STA 381, or STA 681 or equivalent statistics course. (Same as GEO 643.)

**CE 633 AIR TRANSPORT ENGINEERING.** (3)
Planning location and design of airports, STOL ports, and heliports. Air traffic operations, performance and control as related to facility requirements. Role of governmental agencies. Prereq: CE 531 or consent of instructor.

**CE 634 TRAFFIC CHARACTERISTICS.** (3)
Vehicle operating characteristics; driver, pedestrian and roadway characteristics as they individually, and collectively as traffic stream characteristics, are related to the planning design and operation of highway facilities. Prereq: CE 331.

**CE 636 OPERATIONAL EFFECTS OF GEOMETRICS IN TRANSPORTATION.** (3)
Operational effects of the geometry of transportation facilities includes capacity, safety, and economic considerations prompting current and impending changes in geometric design of intersections, interchanges, horizontal and vertical alignment, clearances, cross section elements and interfaces between elements of the transportation system. Prereq: CE 331.

**CE 641 MECHANICS OF LIQUID FLOW IN PIPES.** (3)
Steady and unsteady one-dimensional pipe flow. Water hammer and surge tank analysis. Steady two-dimensional pipe flow. Digital and analog computer applications. Prereq: CE 549.

**CE 642 OPEN CHANNEL FLOW.** (3)
The hydraulics of free surface flow including such topics as uniform flow, varied flow, unsteady flow, the hydraulic jump flow transitions, spillways and channel delivery. Prereq: CE 341. (Same as AEN 642).

**CE 651 FUNDAMENTALS OF WATER QUALITY CONTROL I.** (3)
Theory and practices of water and wastewater treatment with emphasis on physical and chemical processes for municipal and industrial wastewater treatment. Prereq: CE 451 or consent of instructor.

**CE 652 FUNDAMENTALS OF WATER QUALITY CONTROL II.** (3)
Theory and practices of wastewater treatment with emphasis on biological treatment processes for municipal and industrial wastewater treatment. Prereq: CE 451 or consent of instructor.

**CE 653 WATER QUALITY IN SURFACE WATERS.** (3)
Water quality requirements for various beneficial uses. Analysis of dispersion, advection, evaporation, natural aeration, biological oxidation and photosynthesis; their effects on the physical, chemical and biological quality of waters in streams, lakes, reservoirs, estuaries and other surface waters. Eutrophication. Prereq: MA 214 and CE 451, or consent of instructor. (Same as AEN 653).

**CE 654 PRINCIPLES OF WATER AND WASTEWATER TREATMENT PROCESSES.** (3)
Physical, chemical, and biological principles of water and wastewater treatment processes. Basic concepts such as chemical kinetics and equilibrium, acid-base chemistry, oxidation-reduction reactions and acid mine drainage, reactor design, mass transfer, and microbial metabolism are emphasized. Prereq: CE 451 or consent of instructor.

**CE 660 GROUNDWATER HYDROLOGY.** (3)
The equations of saturated and unsaturated groundwater flow, the formulation of boundary value problems, and some analytical methods of solution. Solutions using Fourier series, solutions involving the Fourier transform and the Fourier sine and cosine transforms. The Boltzman transformation, development of the Philip solution for horizontal and vertical flow. Mathematical statement of the saturated and unsaturated groundwater pollution problem and some analytical methods of solution. The semigroup solution of the resulting evolution equation, examples of solutions using the Laplace transform and the Fourier transform, more complex solutions in two-dimensional and three-dimensional domains, solutions for distributed sources in time and in space, solutions for time-varied boundary conditions. Prereq: MA 214, CE 461G or equivalent. (Same as AEN 638).

**†CE 661 ADVANCED HYDROLOGY.**

**CE 662 STOCHASTIC HYDROLOGY.** (3)
Hydrologic random variables and probability distributions. Statistical measures, development and use of Monte Carlo simulations in the generation of precipitation fields. Statistical tests of hydrologic data. Point frequency and regional frequency analysis. Analysis of hydrologic time series. Long-term trend, harmonic analysis of periodicity, autocorrelation, spectral analysis. Correlation and regression analysis. Linear stochastic models. Introduction to stochastic processes in hydrology, real-time hydrologic forecast (Kalman filter), pattern recognition, and stochastic differential equations. Prereq: MA 214, CE 461G or equivalent.

**CE 665 WATER RESOURCES SYSTEMS.** (3)
Application of systems analysis, mathematic modeling, and optimization in water resources management and design. Solution of engineering problems found in water supply, water quality, urban drainage, and river basin development and management by use of linear, nonlinear, and dynamic programming models. Prereq or concur: CE 421 and CE 569 or consent of instructor. (Same as AEN 665).

**CE 667 STORMWATER MODELING.** (3)
Introduction to deterministic and parametric modeling approaches for mathematically simulating stormwater runoff and quality. Emphasis on modeling concepts and model formulation. Analysis of deterministic component models and their linkage. Formulation of existing parametric models. Presentation of methods for parameter optimization and regionalization. Demonstration of linkage between the two approaches with illustrative examples. Prereq: CE 341 and CE 461G, or consent of instructor. (Same as AEN 667).

**CE 671 ADVANCED SOIL MECHANICS.** (3)
Detailed study of soil behavior. Specific topics include soil classification and structure, strength and deformational behavior, compaction, consolidation, and stress distribution in earth masses. Prereq: CE 471G or consent of instructor.

**CE 676 GROUNDWATER AND SEEPAGE.** (3)
Permeability and capillary flow in soils, mathematical theory of flow through porous media. Flow through anisotropic, stratified and composite sections. Solution by flow net, conformal mapping and numerical methods. Seepage toward wells. Dewatering and drainage of soils. Prereq: CE 471G or consent of instructor.

**CE 679 SOIL-STRUCTURE DYNAMICS AND EARTHQUAKE ENGINEERING.** (4)
Dynamic and earthquake response of soils and structures using standard analysis and design techniques. Time discretization topics include fast Fourier transforms, central differences, Newmark's method and Rayleigh-Ritz modal decomposition. Elastic wave propagation and measurement methods for obtaining the dynamic properties of soils and structures are considered. Earthquake terminology, analysis and design methods. Prereq: CE 579 and CE 582.

**CE 681 ADVANCED CIVIL ENGINEERING MATERIALS.** (3)
Fundamental aspects of mechanical behavior of civil engineering materials. Rheology and fracture of asphalt and Portland cement concrete materials. Prereq: CE 381.

**CE 682 ADVANCED STRUCTURAL ANALYSIS.** (3)
Theory and application of energy principles for plane and space frames; material and geometric nonlinearities; and nonlinear solution schemes. Prereq: CE 582 or consent of instructor.

**CE 683 EXPERIMENTAL STRUCTURAL ANALYSIS.** (3)
Theory and practice of model analysis to facilitate the solution of unusual problems in structural engineering. Dimensional analysis, similitude requirements, materials, fabrication, loading and instrumentation of models, and interpretation of results.

**CE 684 SLAB AND FOLDED PLATE STRUCTURES.** (3)
Design and analysis of reinforced concrete floor slabs and folded plate roofs. Elastic and inelastic methods. Prereq: CE 582, EM 531, or consent of instructor.

**CE 686 ADVANCED REINFORCED CONCRETE THEORY.** (3)
Background and origin of modern reinforced concrete design procedures and codes. Comparison of American and foreign methods of analysis. Review of current research and projection to anticipated future changes in design and construction practices. Prereq: CE 486G, EM 531 or consent of instructor.

**CE 687 ADVANCED METAL STRUCTURES.** (3)
Background and origin of modern structural steel design procedures and codes. Applications of various methods to structural buckling problems. Instability of beams, columns, frames, and plates. Considerations of buckling and interaction of buckling modes in design. Post-buckling analysis and design of cold-formed steel, and other metal structures. Plastic analysis and design of steel frames. Factors related to metal structural design. Prereq: CE 582, EM 531, or consent of instructor.

**CE 699 TOPICS IN CIVIL ENGINEERING (Subtitle required).** (1-4)
An advanced level presentation of a topic from one of the major areas of civil engineering such as hydraulics, geotechnics, structures, transportation, surveying, or water resources. May be repeated to a maximum of eight credits, but not more than four credits may be earned under the same subtitle. Course with a given subtitle may be offered not more than twice under this number. Prereq: Variable; given when topic identified; graduate standing.

**CE 709 COMPUTER APPLICATIONS IN CONSTRUCTION.** (3)
This course is an advanced design class where students, using the knowledge gained in 500 and 600 level construction courses, learn how to select and implement automation into the construction process. Students investigate commercially available software and its use in managing construction projects. Prereq or concur: CE 503, 505, 602.

**CE 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CE 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**CE 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**CE 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)

**CE 772 EXPERIMENTAL METHODS IN SOIL MECHANICS.** (3)
A comprehensive study, including literature review, and experimentation of the instrumentation, methods, and problems associated with the measurement of the behavior and the properties of soil. Laboratory and field methods used in research and practice. Lecture and recitation, two hours; laboratory, three hours. Prereq or concur: CE 671 or consent of instructor.

**CE 779 ADVANCED GEOTECHNICAL ENGINEERING.** (3)
Application of the principles of soil mechanics to the design and analysis of foundations and earth structures. Prereq: CE 579 and CE 671 or consent of instructor.

**CE 782 DYNAMICS OF STRUCTURES.** (3)
Review of methods of analysis of simple structural systems. Effects of wind, earthquake, traffic and machinery loads. Matrix methods for complex dynamic structural systems, random vibrations of structures. Prereq: EM 513 and CE 682 or consent of instructor.

**CE 784 SHELL STRUCTURES.** (3)
Design and analysis of reinforced concrete shell structures, including domes, barrel shells, hyperbolic paraboloids and cylindrical tanks. Prereq: CE 684 or consent of instructor.

**CE 790 SPECIAL RESEARCH PROBLEMS IN CIVIL ENGINEERING.** (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Consent of the chairperson of the department.

**CE 791 SPECIAL DESIGN PROBLEMS IN CIVIL ENGINEERING.** (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Consent of the chairperson of the department.

## CEP Cooperative Education

**CEP 399 COOPERATIVE EDUCATION.** (1)
A course designed for undergraduate students who, through the appropriate cooperative education office, secure full-time, salaried, career-related positions under the supervision of a sponsoring employer. Enrollment in the course constitutes full-time status. Course may be taken on a pass-fail basis only and may be repeated on a rotational basis to a maximum of six credit hours. Prereq: Prior approval from the director of co-op education in participating academic unit.

## CEX Cooperative Extension

**CEX 501 PRINCIPLES OF COOPERATIVE EXTENSION.** (3)
Philosophy, history and development of cooperative extension service; evaluation of instructional techniques; leadership training; and practice in use of extension methods. Open to junior, senior and graduate students.

## CHE Chemistry

***CHE 104 INTRODUCTORY GENERAL CHEMISTRY.** (3)
A study of the general principles including laws of definite and multiple proportions, stoichiometry, gases, electronic structure, chemical bonding, periodic relationships, oxidation-reduction, acid bases, chemical equilibrium and acids/bases. Intended for students interested in a one-semester course in general chemistry and recommended for students seeking careers in nursing, nutrition and allied health science fields. Not open to students who have already completed both CHE 105 and 107. Prereq: A working knowledge of algebra such as is acquired in two years of high school algebra, CHE 105, or MA 108R, or a composite ACTE score of 22 or above.

***CHE 105 GENERAL COLLEGE CHEMISTRY I.** (3)
A study of the principles of chemistry and their application to the more important elements and their compounds. Not open to students who have already completed both CHE 104 and 106, but is open to students who have completed just CHE 104. Prereq: Math ACTE of 21 or above, or MA 109 (or Math placement test), or Chemistry placement test, or the Community College course CHE 102R or CHM 100.

**CHE 106 INTRODUCTION TO INORGANIC, ORGANIC AND BIOCHEMISTRY.** (4)
A continuation of CHE 104. A study of selected aspects of inorganic, organic and biochemistry including the chemistry of metals and nonmetals, introduction to organic functional group chemistry, proteins, nucleic acids and lipids. Lecture, three hours; laboratory, three hours per week. Not open to students who have already completed CHE 105 and 107. Not recommended for students seeking careers in medicine, science, dentistry, engineering, veterinary science, agricultural sciences, education, or allied fields for which the recommended sequence is CHE 105-107-115. Prereq: CHE 104 or the community college course CHM 100.

**CHE 107 GENERAL COLLEGE CHEMISTRY II.** (3)
A continuation of CHE 105. A study of the principles of chemistry and their application to the more important elements and their compounds. Not open to students who have completed only CHE 104 but is open to students who have completed both CHE 104 and 106. Prereq: CHE 105 or both CHE 104 and 106.

**CHE 115 GENERAL CHEMISTRY LABORATORY.** (3)
An introductory laboratory course dealing with chemical and physical properties; qualitative analysis, and an introduction to quantitative analysis. Lecture, one hour; laboratory, four hours. Prereq or concur: CHE 107.

**CHE 226 ANALYTICAL CHEMISTRY.** (3-5)
An introduction to the theory and practice of quantitative analysis. Lecture, two hours; laboratory, three to six hours. Prereq: CHE 107 and 115.

**CHE 230 ORGANIC CHEMISTRY I.** (3)
Fundamental principles and theories of organic chemistry. Prereq: CHE 107 and 115.

**CHE 231 ORGANIC CHEMISTRY LABORATORY I.** (2)
Laboratory for CHE 230 or CHE 236. Laboratory, six hours per week. Prereq or concur: CHE 230 or CHE 236.

**CHE 232 ORGANIC CHEMISTRY II.** (3)
A continuation of CHE 230. Prereq: CHE 230.

**CHE 233 ORGANIC CHEMISTRY LABORATORY II.** (2)
Laboratory for CHE 232. Laboratory, six hours per week. Prereq: CHE 231. Prereq or concur: CHE 232.

**CHE 235 SPECIAL ORGANIC LABORATORY.** (1)
Special laboratory for students majoring in chemical engineering, materials science engineering, or clinical laboratory sciences. Laboratory, three hours per week. Prereq or concur: CHE 230 or CHE 236.

**CHE 236 SURVEY OF ORGANIC CHEMISTRY.** (3)
A one-semester course in organic chemistry. Not open to students who have already completed both CHE 230 and 232. Prereq: CHE 115.

**CHE 395 INDEPENDENT WORK IN CHEMISTRY.** (1-3)
May be repeated to a maximum of nine credits. Prereq: Major and a standing of 3.0 in the department.

***CHE 440G PHYSICAL CHEMISTRY.** (4)
An introduction to the laws of thermodynamics, the thermo-dynamic functions and their application to phase equilibria, chemical equilibria, solutions and electrochemistry. Chemical kinetics, including rate laws, reaction mechanisms, Arrhenius, collision, and activated complex theories, and catalysis. Quantum theory including an elementary introduction to spectroscopy. The fourth hour to be devoted to problem solving and problem-solving techniques. Prereq: CHE 226; MA 114; PHY 213 or 232.

**CHE 441G PHYSICAL CHEMISTRY LABORATORY.** (2)
Laboratory studies in physical chemistry to accompany CHE 440G or 444G. Laboratory, six hours. Prereq: CHE 440G or 444G.

***CHE 442G PHYSICAL CHEMISTRY.** (3)
A further development of the material introduced in CHE 440G: Advanced thermodynamic methods, statistical thermodynamics, quantum chemistry, and spectroscopy. Prereq: CHE 440G or 446G.

**†CHE 443G PHYSICAL CHEMISTRY LABORATORY.**

**†CHE 444G PHYSICAL CHEMISTRY.**

**#CHE 446G PHYSICAL CHEMISTRY FOR ENGINEERS.** (3)
An introductory course in physical chemistry for engineering students. Kinetic theory, thermodynamics, phase diagrams, colligative properties, electrochemistry, transport properties, kinetics, quantum theory, spectroscopy. Prereq: CHE 107, 115; PHY 232; MA 213.

**CHE 450G PRACTICAL INORGANIC CHEMISTRY.** (3)
A combined lecture and laboratory course which will acquaint the student with the synthesis, characterization and properties of inorganic and organometallic compounds of both main-group and transition elements. Lecture, one hour; laboratory, six hours per week. Prereq: CHE 231 and CHE 232; prereq or concur: CHE 440G or CHE 444G.

**CHE 510 ADVANCED INORGANIC CHEMISTRY.** (3)
A course dealing with the concepts of inorganic chemistry with emphasis on atomic structure, periodicity, nomenclature, bonding, reaction mechanisms and acid-base theories. Prereq: CHE 107 or 226.

**CHE 514 DESCRIPTIVE INORGANIC CHEMISTRY.** (3)
A course dealing in detail with descriptive chemistry of the elements and their compounds, excluding the hydrocarbons and their derivatives. Prereq: CHE 226 and CHE 232; or CHE 450G, or permission of instructor.

**CHE 520 RADIOCHEMISTRY.** (3)
Applications of radionuclides in chemistry with emphasis on principles of radioactive decay, interactions of radiation with matter, use of isotopic tracers, activation analysis, isotope dilution analysis, hot atom chemistry and nuclear dating methods. Prereq: CHE 107, or 226.

**CHE 521 RADIOCHEMISTRY LABORATORY.** (1-2)
Introductory radiochemistry laboratory. Emphasis is on nuclear radiation detection and radiochemical techniques including activation analysis, isotope dilution, liquid scintillation counting, hot-atom chemistry, X-ray fluorescence, nuclear spectroscopy, and radiochemical separations. Three or six (laboratory and discussion) hours per week. Prereq: CHE 520.

**CHE 522 INSTRUMENTAL ANALYSIS.** (4)
The theory and application of instrumental methods of analysis. Lecture, two hours; laboratory, six hours. Prereq or concur: CHE 442G or 444G.

**CHE 524 CHEMICAL INSTRUMENTATION.** (4)
Aspects of electronics, microcomputers, computer interfacing and data analysis as they apply to chemical measurements and measurement systems. Lecture, two hours; laboratory, six hours per week. Prereq: CHE 440G or 444G or consent of instructor.

**CHE 526 CHEMICAL SEPARATIONS.** (2)
An advanced study of the theory, instrumentation, and analytical applications of chemical separation methods. Prereq: CHE 440G or 444G or consent of instructor.

**CHE 532 SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS.** (2)
Problems involving the use of nuclear magnetic resonance, ultraviolet and infrared spectroscopy, mass spectrometry and differential chemical reactivity in determining the structure of organic compounds. Discussion of chemical and physical methods for separation of mixtures of organic compounds. Prereq: CHE 231 and CHE 232.

**CHE 533 QUALITATIVE ORGANIC ANALYSIS LABORATORY.** (2)
The identification of unknown organic compounds using nuclear magnetic resonance, ultraviolet and infrared spectroscopy, mass spectrometry and traditional chemical techniques. Separation techniques are also emphasized. Laboratory, six hours. Prereq: CHE 532.

**CHE 535 SYNTHETIC ORGANIC CHEMISTRY.** (3)
A general survey of organic chemistry with emphasis on synthetic methods and the synthesis of natural products. Prereq: CHE 232.

**CHE 538 PRINCIPLES OF ORGANIC CHEMISTRY.** (3)
A general survey of the field of organic chemistry. Topics emphasized are: mechanistic principles relating molecular structure to reaction outcome, stereoisomerism and its effect on chemical reactivity, and simple molecular orbital theory as required to understand aromaticity and to predict the occurrence and stereochemistry of pericyclic reactions. Prereq: CHE 232.

**CHE 547 PRINCIPLES OF PHYSICAL CHEMISTRY I.** (3)
An introduction to quantum chemistry and spectroscopy, emphasizing applications to chemical bonding, atomic and molecular spectroscopy, and magnetic resonance. Prereq: CHE 442G, MA 214; or equivalent courses; or permission of instructor.

**CHE 548 PRINCIPLES OF PHYSICAL CHEMISTRY II.** (3)
Fundamental principles of classical physical chemistry, including thermodynamics, statistical thermodynamics, and chemical kinetics. Prereq: CHE 440G.

**CHE 572 COMMUNICATION IN CHEMISTRY.** (1)
Reports and discussions on recent research and current chemical literature in seminar format; literature searching methods; résumé construction; preparation of effective presentations, abstracts, and visual aids. May be repeated for a total of two credits.

**CHE 580 TOPICS IN CHEMISTRY.** (1-3)
A detailed investigation of a topic of current significance in chemistry. May be repeated to a maximum of six credits. Lecture and/or laboratory: variable. Prereq: CHE 232 and 440G or 444G, or consent of instructor.

**CHE 602 SHORT TOPICS IN CHEMISTRY.** (1-3)
Three topics of current research significance in chemistry are investigated over a period of five weeks each. Students may register for topics A, B, or C for one credit hour for each topic. May be repeated to a maximum of six credits but no more than one credit may be earned under the same title. Prereq: Consent of instructors.

**CHE 610 CHEMISTRY OF THE TRANSITION METALS.** (3)
A detailed treatment of the chemistry of the transition elements, lanthanides and actinides, including the structure of coordination complexes, bonding, reaction mechanisms and preparations. Prereq: CHE 510.

**CHE 614 ORGANOTRANSITION METAL CHEMISTRY.** (3)
A detailed treatment of the organometallic chemistry of the transition metals, including lanthanides and actinides. Topics include synthesis, structure, bonding theories, reactions, characterization by physical methods, and applications in organic chemistry and catalysis. Prereq: CHE 232, CHE 410G or 510, and CHE 442G or 444G; or equivalent courses; or permission of instructor.

**CHE 616 NUCLEAR CHEMISTRY.** (3)
An advanced study of nuclear chemistry and topics related to nuclear and radiochemistry. Prereq: CHE 443G and 520.

**CHE 620 ELECTROCHEMICAL METHODS OF ANALYSIS.** (3)
An intensive study of the fundamental theories and principles of electrochemistry, and their practical applications for physical and quantitative analytical measurements. Topics will include potentiometric, voltametric, amperometric, and coulometric methods. Lecture, two hours; laboratory, three hours per week. Prereq: CHE 442G, 522 or 548.

**CHE 625 OPTICAL METHODS OF ANALYSIS.** (3)
An intensive study of the theory, instrumentation, and analytical applications of modern atomic and molecular spectrometric methods. Lecture, two hours; laboratory, three hours per week. Prereq: CHE 522.

**CHE 626 ADVANCED ANALYTICAL CHEMISTRY.** (3)
An advanced study of the theory and practice of quantitative analysis.

**CHE 633 PHYSICAL ORGANIC CHEMISTRY.** (3)
An advanced presentation of the mechanisms of organic reactions, the experimental methods used to elucidate these mechanisms, and the effect of changing structure and reaction conditions on the reactivity of organic molecules. Prereq: CHE 538.

**CHE 643 SPECTROSCOPY AND PHOTOPHYSICS.** (3)
An integrated treatment of modern spectroscopy and photophysics. Topics to include atomic spectroscopy, microwave, infrared and UV-visible spectroscopy of diatomic and polyatomic molecules, lasers, creation and detection of excited states, fluorescence, phosphorescence, radiationless processes and photochemical transformations. Prereq: CHE 547 or CHE 440G/442G or permission of instructor.

**CHE 646 CHEMICAL KINETICS.** (3)
Studies of chemical reactions from the standpoint of velocity and mechanism. Prereq: CHE 442G.

**CHE 647 ADVANCED QUANTUM CHEMISTRY.** (3)
A course treating the principles and techniques of advanced quantum chemistry. Topics may include infrared, microwave, NMR and ESR spectroscopy, quantum theory of angular momentum, group theory, tensor operators, time-dependent perturbation theory, variational methods, degenerate and nondegenerate perturbation theory, and molecular orbital theory. Prereq: CHE 547.

**CHE 648 CHEMICAL THERMODYNAMICS.** (3)
Advanced study of thermodynamic principles, including application of statistical thermodynamics to chemical systems. Prereq: CHE 547 or consent of instructor.

**CHE 710 TOPICS IN INORGANIC CHEMISTRY.** (2-4)
Discussion of topics of recent interest in inorganic chemistry, including physical methods, syntheses, and structural theories. May be repeated to a maximum of 12 credits. Prereq: CHE 610 or 612.

**CHE 736 TOPICS IN ORGANIC CHEMISTRY. (2-4)**
Selected topics which may include heterocyclic organic compounds, natural and synthetic dyes, carbohydrates, nitrogen compounds, and recent advances in the field of organic chemistry. May be repeated to a maximum of 12 credits.

**CHE 746 TOPICS IN PHYSICAL CHEMISTRY. (2-4)**
Selected topics which may include photochemistry, structure of crystals, molecular spectra, nature of the chemical bond, and other recent advances in the field of physical chemistry. May be repeated to a maximum of 12 credits. Prereq: CHE 442G.

**CHE 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CHE 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**CHE 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**CHE 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**CHE 772 PRACTICUM IN CHEMISTRY INSTRUCTION. (1)**
Supervised practicum experiences for teaching assistants in the methods and techniques of effective instruction in laboratory and recitation classes in chemistry. Required of all new graduate teaching assistants. Prereq: Admission to M.S. or Ph.D. program in chemistry.

**CHE 776 GRADUATE SEMINAR. (1)**
Reports and discussions on recent research and current literature. Required of all graduate students. May be repeated for a total of eight credits.

**CHE 779 MEMBRANE SCIENCES COLLOQUIUM. (1)**
Outstanding membrane scientists present their current research on biological and/or synthetic membranes. Students read a pertinent paper by the speaker prior to his/her talk and write a short paper on the talk; especially important is relevance of the main points of the talk to membrane science in general and the student's own research in particular. May be repeated to a maximum of six credits. (Same as BCH/CME/PHA/PHR 779.)

**CHE 780 INDIVIDUAL WORK IN CHEMISTRY. (1-5)**
Selected library and laboratory problems in conformance with the student's interest will be attacked and pursued under the direction of a suitable staff member who is proficient in the area under investigation.

**CHE 790 RESEARCH IN CHEMISTRY. (1-12)**
Work may be taken in the following fields, subject to the approval of the Departmental Graduate Committee: analytical chemistry, industrial chemistry, inorganic chemistry, organic chemistry, radiochemistry, or physical chemistry. May be repeated indefinitely.

## CJT Communication, Journalism, Telecommunications – Graduate Courses

**CJT 601 PROSEMINAR IN COMMUNICATION. (3)**
Introduction to graduate study; theory and systems, research strategies. Prereq: Graduate standing in communications or consent of instructor.

**CJT 607 EVALUATING AND COMMUNICATING INFORMATION. (3)**
A study of the communication systems with which students will work, of the effect of the communications systems on public decisions, and of the means by which students work efficiently with communications systems. Prereq: Graduate standing in communications or consent of instructor.

**CJT 608 MASS COMMUNICATIONS AND SOCIETY. (3)**
A study of the ways in which the communications media play their roles in contemporary society with special attention to the major functions, rights, and responsibilities of media and individuals. Prereq: Graduate standing in communications or consent of instructor.

**CJT 615 INFORMATION SYSTEMS DESIGN. (3)**
Principles and problems of information systems: systems analysis applied to information systems. Design of information systems with particular attention to equipment, training of personnel and evaluation. Prereq: CJT 601 and graduate standing in communications or consent of instructor.

**CJT 619 GLOBAL COMMUNICATION AND INFORMATION PERSPECTIVES. (3)**
Examines important issues in communication from a global perspective. In-depth study of international communications systems, international information flow, problems that occur in communicating with members of different cultures or subcultures, and development of theories and strategies for improving international communications at the mass, organizational, and interpersonal levels. Prereq: CJT 601 and graduate standing in communications or consent of instructor.

**CJT 625 PROSEMINAR IN ORGANIZATIONAL COMMUNICATION. (3)**
This course is an introductory graduate-level survey of theory and research in the area of organizational communication and related topics. Students will be exposed to a variety of current theoretical perspectives and methodological orientations. Prereq: Graduate standing in communications or consent of instructor.

**CJT 630 PROSEMINAR IN MASS MEDIA LAW AND PUBLIC POLICY. (3)**
Study of mass communication law and policy-making. Intensive review of court decisions, statutes and administrative rules and regulations regarding libel, privacy, public access to government meetings and documents, intellectual property, broadcast regulation, commercial and corporate speech, obscenity and protection of news sources.

**CJT 631 PROSEMINAR IN INTERPERSONAL COMMUNICATION. (3)**
An intensive examination of theories, methods of investigation, and current developments in the area of interpersonal communication. Prereq: Graduate standing in communications or consent of instructor.

**CJT 645 MASS COMMUNICATION THEORIES AND RESEARCH. (3)**
A broad examination and critical analysis of major mass communication theories and research areas. Prereq: A course in research methods and graduate standing in communications or consent of instructor.

**CJT 650 SIGNS AND SIGN BEHAVIOR. (3)**
A study of syntactic, semantic and pragmatic aspects of language and their relation to communication. Specific topics are covered by the individual student with an outlook toward the research report-proposal. Prereq: Graduate standing in communications or consent of instructor.

**CJT 651 COMMUNICATIONS THEORY. (3)**
Major theories of the communications process and review of experiments and field studies on communications. Readings, discussion, and student experiments testing theoretical propositions about communications. Prereq: Course in statistics or in design of social research and graduate standing in communications or consent of instructor.

**CJT 665 COMMUNICATIONS RESEARCH METHODS. (3)**
The scientific method. Communications research as a part of social science research. Study and practice of advanced behavioral research techniques which apply to communications. Prereq: A behavioral research course and graduate standing in communications or consent of instructor.

**CJT 682 COMMUNICATION AND PERSUASION. (3)**
An advanced course examining the literature in communication and attitude change. Issues in measurement, theory, and philosophical orientation are central. Covers communication broadly, including interpersonal, mediated, and mass communication. Prereq: Graduate standing in communications or consent of instructor.

**CJT 696 INTERNSHIP IN COMMUNICATIONS. (3)**
Field experience for candidates for the M.A. degree in any field of communications through work in industry, government, education, research or business agencies. Laboratory, 12 hours per week. Prereq: Admission to M.A. program and 18 hours of graduate work. Consent of DGS required.

**CJT 700 DIRECTED READING IN COMMUNICATION. (1-3)**
Individual reading study on some communications aspects not treated in depth in a regular course or of topical interest. Advance consultation regarding reading list and examination procedure required. May be repeated to a maximum of 12 credits. Prereq: Graduate standing in Communications or consent of instructor.

**CJT 701 SEMINAR IN COMMUNICATION PERSPECTIVES. (3)**
Study of selected topics important to viewing in perspective the development of communication theories and problems. May be repeated to a maximum of six credits. Prereq: Graduate standing in Communications or consent of instructor.

**CJT 705 SEMINAR: INFORMATION SCIENCES. (3)**
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybernetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. Prereq: CJT 601 and graduate standing in communications or consent of instructor.

**CJT 719 SPECIAL TOPICS/ISSUES IN INTERNATIONAL/INTERCULTURAL COMMUNICATION. (3)**
Special Topics/Issues in International/Intercultural Communication examines the current and the alternative perspectives in the field of study. Topics/Issues such as the New World Information and Communication Order, Information/Communication Technologies, Communication and Development, Transborder Data Flows, etc., are studied. May be repeated to a maximum of six credits. Prereq: CJT 619 and graduate standing in communications or consent of instructor.

**CJT 721 SEMINAR IN INTRAPERSONAL COMMUNICATION. (3)**
The investigation of a single category of theoretical approaches to communication processing within a single organism. May be repeated. Prereq: Graduate standing in communications or consent of instructor.

**CJT 725 SEMINAR IN ORGANIZATIONAL COMMUNICATION: (Subtitle required). (3)**
This course is concerned with theory and research relevant to organizational communication and related areas of interest. Special attention is given to various topics relevant to a specific subtitle. May be repeated to a maximum of six credits under a different subtitle. Prereq: Graduate standing in communications or consent of instructor.

**CJT 730 SEMINAR IN MASS MEDIA AND PUBLIC POLICY. (3)**
The role of mass communications media in making public policy and the effects of public policies on the mass media. One subject area will be investigated each semester; typical topics are (1) political campaign communications; (2) censorship; (3) controversial public issues; (4) rights; (5) international and world agreements. Prereq: Graduate standing in communications or consent of instructor.

**CJT 731 SEMINAR IN INTERPERSONAL COMMUNICATION. (3)**
Consideration of special problems in interpersonal communication with emphasis on emergence of theory and implications for further research. May be repeated once. Prereq: Graduate standing in communications or consent of instructor.

**CJT 745 SEMINAR IN MASS COMMUNICATION (Subtitle required). (3)**
Consideration of selected topics in mass communication theory and research. May be repeated under a different subtitle to a maximum of six credits. Prereq: CJT 645 or its equivalent and graduate standing in communications or consent of instructor.

**CJT 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CJT 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**CJT 765 COMMUNICATION RESEARCH DESIGN. (3)**
An intermediate course in the design of communication studies. May be repeated to a maximum of six credits. Prereq: CJT 665 or the equivalent and graduate standing in communications or consent of instructor.

**CJT 767 QUALITATIVE METHODS IN COMMUNICATION RESEARCH. (3)**
This seminar treats the underlying assumptions and methodological techniques of qualitative study in communication research. May be repeated to a maximum of six credits. Prereq: Graduate standing and CJT 665 or equivalent.

**CJT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**CJT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely. Prereq: Satisfactory completion of Qualifying Examination (third year).

**CJT 771 SEMINAR IN HEALTH COMMUNICATION. (3)**
A topical seminar discussing issues in the field of health communication from a variety of perspectives, e.g., the relevance of interpersonal, international and intercultural and mass communication processes to the quality and availability of health care. May be repeated to a maximum of six credits.

**CJT 780 SPECIAL TOPICS IN COMMUNICATION (Subtitle required). (3)**
Professors will conduct research seminars in topics or problems in which they have special research interests. May be repeated to a maximum of six credits. Prereq: At least one year of graduate study in communication.

**CJT 781 DIRECTED STUDY IN COMMUNICATION. (1-6)**
To provide advanced students with an opportunity for independent work to be conducted in regular consultation with the instructor. May be repeated to a maximum of six credits. (To be used for independent work.) Prereq: Consent of instructor.

**CJT 782 SEMINAR IN STRATEGIC COMMUNICATION (Subtitle required). (3)**
This course is concerned with advanced theory and research in strategic communication and social influence. Special attention may be given to compliance gaining, negotiation, self-presentation, deception or other types of strategic interaction. May be repeated to a maximum of six credits under a different subtitle. Prereq: Graduate standing in communications or consent of instructor.

**CJT 790 RESEARCH PROBLEMS IN COMMUNICATION. (1-6)**
Intensive study in communications with qualified staff members. Research paper is required. May be repeated to a maximum of 12 credits. Prereq: Satisfactory completion of Preliminary Examination (second year) and consent of instructor.

## CLA Classical Languages and Literatures

**COURSES IN ENGLISH**
(No knowledge of Greek or Latin expected.)

**CLA 131 MEDICAL TERMINOLOGY FROM GREEK AND LATIN.** (3)
Latin and Greek roots, prefixes, and suffixes as found in medical terminology. Primarily for pre-medical, pre-dental, pre-nursing and pre-veterinary students, but others will be admitted for help in vocabulary building.

**CLA 210 THE ART OF GREECE AND ROME.** (3)
A survey of the major forms of art in ancient Western Asia, Greece, and Rome, with emphasis on the comparative typology and cultural significance of the monuments.

**CLA 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT.** (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon. (Same as HIS 229.)

**CLA 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE.** (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic World, the Roman Republic and the Roman Empire to the death of Constantine. (Same as HIS 230.)

**CLA 235 CLASSICAL MYTHOLOGY.** (3)
The Greek myths studied both from the standpoint of their meaning to the Greeks and Romans and from the standpoint of their use in later literature and in everyday life.

**CLA 261 LITERARY MASTERPIECES OF GREECE AND ROME.** (3)
A survey of major Greek and Roman literary works. Attention will be focused on the various genres of Classical literature, and the course will include comparative analysis of Greek and Latin literary pieces.

**CLA 311 GREECE: FROM THE DARK AGES INTO HISTORY.** (3)
Study of the art and architecture of Greece from about the 11th through the 6th century B.C. Emphasis on the development of social and philosophical traditions as expressed in art and material culture. (Same as A-H 311.)

**CLA 312 THE ART OF CLASSICAL GREECE.** (3)
Study of the art and architecture of Greece in the 5th and 4th centuries B.C. in their historical context. The contributions of Greece to the art of the Roman Republic and Empire will also be considered. (Same as A-H 312.)

***CLA 313 ROMAN ART.** (3)
Study of the art and architecture of Rome from the early Republic through the age of Constantine. Attention will focus on painting, sculpture and architecture as reflections of political, social and cultural developments in the Roman world. Prereq: A-H 105 recommended. (Same as A-H 313.)

**CLA 390 ROMAN, JEW AND GREEK: BACKGROUNDS TO CHRISTIANITY.** (3)
A survey of the development of Christian literature in the first four centuries. Attention will be focused on the efforts of the Christian community to achieve its own identity and to resolve the conflicts which it faced with Judaism, with the Graeco-Roman world and within itself.

**CLA 395 INDEPENDENT STUDY IN GREEK.** (1-3)
Study of an author (e.g. Plato), a work (e.g. the *Iliad*), or a topic (e.g. prose syntax and style). All readings are in Greek. May be repeated to a maximum of 12 credits with different topics. Prereq: CLA 252 or equivalent, and consent of director of undergraduate studies and instructor.

**CLA 425G THE HEROIC IDEAL: GREEK AND ROMAN EPIC.** (3)
A study of the epic genre as developed in the works of major Greek and Latin writers. Attention will be focused on the cultural background of each author and his contribution to the genre as a whole. In addition to Homer and Virgil, the course will normally include the study of Apollonius and Lucan.

**CLA 426G CLASSICAL DRAMA: TRAGEDY AND COMEDY IN GREECE AND ROME.** (3)
A study of the development of tragedy and comedy in the ancient world. Attention will be focused on the cultural dimension of each form and the contributions made by individual authors. Emphasis will be placed on Greek tragedy and Roman comedy.

**CLA 450G SPECIAL TOPICS IN CLASSICAL LITERATURE IN TRANSLATION (Subtitle required).** (3)
Each offering of the course is devoted to advanced study of a particular topic in classical literature not covered in other CLA courses, or to a topic in the history of European and North American Latin-language literature, or the classical literary tradition. Examples of such topics are Greek and Latin historiography, classical rhetoric, Latin satire, classical philosophical prose, classical literature and the modern cinema, Latin literature of the Middle Ages and Renaissance. Lectures and discussions, assigned and supplementary readings, paper writing. May be repeated to a maximum of nine credits with different topics.

***CLA 509 ROMAN LAW.** (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. (Same as HIS 509.)

**COURSES IN LATIN**

**CLA 101 ELEMENTARY LATIN.** (4)
An introduction to the study of classical Latin. Emphasis is placed on learning to read the language. Some attention is given to Latin literature and Roman civilization.

**CLA 102 ELEMENTARY LATIN.** (4)
A continuation of CLA 101. Prereq: CLA 101 or the equivalent.

**CLA 201 INTERMEDIATE LATIN.** (3)
Review of grammatical principles together with readings from Latin prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Latin literature. Emphasis is placed on developing reading ability. Prereq: CLA 102 or two years of high school Latin or equivalent.

**CLA 202 INTERMEDIATE LATIN.** (3)
A continuation of CLA 201. Prereq: CLA 201 or three years of high school Latin or equivalent.

***CLA 301 LATIN LITERATURE I (Subtitle required).** (3)
An introduction to the literature of Republican Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles, and themes of Latin literature. Topics vary every time the course is offered. May be repeated once under a different subtitle. Prereq: CLA 202 or equivalent.

***CLA 302 LATIN LITERATURE II (Subtitle required).** (3)
An introduction to the literature of Imperial Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles, and themes of Latin literature. Topics vary every time the course is offered. May be repeated once under a different subtitle. Prereq: CLA 202 or equivalent.

**CLA 522 ROMAN REPUBLICAN PROSE (Subtitle required).** (3)
A study of one or more works selected from prose writings from the beginnings of Roman literary history to 31 B.C. Authors include Cicero, Caesar, Sallust, and others; genres include history, philosophy, rhetoric and oratory, letters, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

**CLA 523 ROMAN REPUBLICAN POETRY (Subtitle required).** (3)
A study of one or more works selected from poetry from the beginnings of Roman literary history to 31 B.C. Authors include Plautus, Terence, Lucretius, Catallus, and others; genres include drama, lyric poetry, didactic poetry, satire, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

**CLA 526 ROMAN IMPERIAL PROSE (Subtitle required).** (3)
A study of one or more works selected from prose writings from approximately 31 B.C. to the end of the Western Empire. Authors include Livy, Petronius, Tacitus, Pliny, Suetonius, Seneca, Quintillan, Augustine, and others; genres include history, philosophy, biography, letters, fiction, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

**CLA 527 ROMAN IMPERIAL POETRY (Subtitle required).** (3)
A study of one or more works selected from poetry from approximately 31 B.C. to the end of the Western Empire. Authors include Virgil, Horace, Propertius, Tibullus, Ovid, Juvenal, Martial, and others; genres include epic, lyric, elegiac, satire, pastoral, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

**CLA 603 STUDIES IN LATIN LITERATURE OF THE REPUBLIC (Subtitle required).** (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Republic. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

**CLA 604 STUDIES IN LATIN LITERATURE OF THE EMPIRE (Subtitle required).** (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Empire. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

**COURSES IN GREEK**

**CLA 151 ELEMENTARY GREEK.** (4)
An introduction to the study of Classical Greek. Emphasis is placed on learning to read the language. Some attention is given to Greek literature and civilization.

**CLA 152 ELEMENTARY GREEK.** (4)
A continuation of CLA 151. Prereq: CLA 151 or equivalent.

**CLA 251 INTERMEDIATE GREEK.** (3)
Review of grammatical principles together with readings from Greek prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Greek literature. Emphasis is placed on developing reading ability. Prereq: CLA 152 or equivalent.

**CLA 252 INTERMEDIATE GREEK.** (3)
The reading of Greek prose and poetry. Textual and literary analysis of selections from classical authors and the New Testament. Prereq: CLA 251 or equivalent.

**CLA 395 INDEPENDENT STUDY IN GREEK.** (1-3)
Study of an author (e.g. Plato), a work (e.g. the Iliad), or a topic (e.g. prose syntax and style). All readings are in Greek. May be repeated to a maximum of 12 credits with different topics. Prereq: CLA 252 or equivalent, and consent of director of undergraduate studies and instructor.

**CLA 552 GREEK EPIC AND LYRIC POETRY.** (3)
A study of the two genres as exemplified in Homer, Hesiod, the Homeric Hymns and the early Greek Lyricists. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

**CLA 553 GREEK PHILOSOPHICAL LITERATURE.** (3)
A study of Greek philosophical literature as exemplified in Plato, Aristotle and other philosophical writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

**CLA 556 GREEK DRAMATIC LITERATURE.** (3)
A study of the Greek drama through selected plays of the major tragic and comic writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

**CLA 557 GREEK HISTORICAL LITERATURE.** (3)
A study of the Greek historiographical tradition as exemplified in Herodotus, Thucydides and other Greek historians. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

**CLA 601 STUDIES IN GREEK LITERATURE I (Subtitle required).** (3)
Intensive study of an author, a literary form or a problem in the period from Homer through the Fifth Century, B.C. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

**CLA 602 STUDIES IN GREEK LITERATURE II (Subtitle required).** (3)
Intensive study of an author, a literary form or a problem in the period from the Fourth Century, B.C. through the Third Century, A.D. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

**CLASSICS IN GENERAL**

**CLA 511, 512 STUDIES IN ROMAN PHILOLOGY.** (3 ea.)
Courses to meet the needs of students in various areas of Roman philology, e.g., in Latin literature, in Roman civilization, in Latin linguistics, etc. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

**CLA 530 THE TEACHING OF LATIN.** (3)
The place of Latin and the classical humanities in general education. Objectives, materials, and methods. The reading approach to learning Latin. Evaluation of textbooks and other materials. Prereq: Senior standing.

**CLA 561, 562 STUDIES IN GREEK PHILOLOGY.** (3 ea.)
Courses to meet the needs of students in various areas of Greek philology, e.g., in Greek literature, in Greek civilization, in Greek linguistics, etc. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

**CLA 580 INDEPENDENT WORK IN CLASSICS.** (3)
Courses to meet the needs of the student, including those who wish to study Medieval and/or Renaissance Latin, will be arranged in various areas. May be repeated to a maximum of 12 credits. Prereq: Major standing of 3.0 in the department or consent of instructor.

**CLA 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CLA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**CLA 790 RESEARCH IN THE TEACHING OF CLASSICAL LANGUAGES.** (3)
Problems in the teaching of Latin and/or Greek in secondary and/or higher education. Objectives, methods, preparation of materials, development of curricula, or the history of the field. Prereq: CLA 530 or the equivalent.

## CLS Clinical Laboratory Sciences

**CLS 120 CLINICAL LABORATORY SCIENCES AS A CAREER.** (1)
Presentation of information about the various careers in clinical laboratory science via lectures, demonstrations and field trips. Open to students wishing to explore the field of clinical laboratory sciences.

**CLS 130 INTRODUCTION TO CLINICAL LABORATORY SCIENCES. (1)**
Through lectures, demonstrations and audiovisuals, students are introduced to disease processes, their manifestations, and laboratory studies used for diagnoses and prognoses. Open to students wishing to explore the field of clinical laboratory sciences.

**CLS 501 SEMINAR IN ADVANCED HEMATOLOGY. (2)**
Study of the biochemical aspects of blood cell physiology and kinetics as applied to practice in the clinical hematology laboratory and a review of current related literature. This course is designed for practicing clinical laboratorians or medical technologists who are pursuing a graduate degree. Prereq: BCH 401G or equivalent and consent of instructor.

**CLS 801 INTRODUCTION TO LABORATORY METHODOLOGY. (1)**
This course is designed to develop basic laboratory skills needed for the clinical laboratory sciences curriculum. Required for new junior students. Lecture, one hour; laboratory, four hours for four weeks. Prereq: Admission to the clinical laboratory sciences professional program.

**CLS 802 CLINICAL LABORATORY METHODS. (1)**
This is a four-week course designed to develop skills and didactic content related to laboratory techniques and procedures common to all areas of the clinical laboratory. Required for second-semester juniors in the CLS professional curriculum. There will be a total of eight lectures and eight laboratory periods in the course. Lecture, two hours; laboratory, six hours per week. Prereq: Admission to the professional curriculum or consent of instructor.

**CLS 809 FUNDAMENTALS OF CLINICAL LABORATORY SCIENCE I. (4)**
This course is presented only within the four-week intersession. The course will be presented in modular form and will: 1) develop basic laboratory skills in clinical laboratory sciences; 2) study the qualitative and quantitative chemical and microscopic constituents of urine, cerebrospinal fluid and other body fluids; and 3) study cellular and humoral immunity with emphasis on the laboratory procedures used to evaluate the immune status. Lecture, eight hours; laboratory, twenty-four hours per week. Prereq: B.S. degree in a related science; one course each in biochemistry and microbiology, or their equivalents.

**CLS 810 FUNDAMENTALS OF CLINICAL LABORATORY SCIENCE II. (8)**
This course is a continuation of CLS 809. The course will be presented in modular form and will cover: 1) basic methodologies and instrumentation principle of Clinical Chemistry; 2) introduction to hematologic methods and procedures; and 3) application of serologic laboratory methods and principles. Lecture, eight hours; laboratory, twenty-four hours per week. Prereq: Completion of CLS 809.

**CLS 815 HISTOTECHNOLOGY I. (3)**
The study of basic principles of fixation, processing, infiltration, and embedding techniques and their application for human and animal tissues. Lecture, two hours; laboratory, two hours per week. Prereq: High school science courses.

**CLS 816 HISTOTECHNOLOGY II. (3)**
The study of principles and applications of microtomy, frozen sectioning and some special staining techniques.

**CLS 817 HISTOTECHNOLOGY III. (3)**
A study of the histologic technique and microscopic anatomy of human tissues using routine hematoxylin and eosin, immunoperoxidase and special stains. Emphasis will be placed on proper preparation of stains and their uses, as well as on microscopic examination for interpretation of properly prepared slides. Demonstration slides will be studied in the laboratory. Lecture, two hours; laboratory, two hours per week. Prereq: CLS 815 and CLS 816.

**CLS 822 ESSENTIALS OF BIOCHEMISTRY FOR CLINICAL SCIENCES. (4)**
A presentation of biochemistry of carbohydrates, lipids, proteins, amino and nucleic acids as the basis of clinical chemistry. Includes an introduction to endocrinology and acid-base balance. Case studies are used to emphasize the role of biochemistry in the understanding of clinical science. Prereq: CHE 104 and 106, or CHE 105, 107, 115 and MLT certification or equivalent.

***CLS 825 BASIC PHYSIOLOGY FOR THE HEALTH SCIENCES. (4)**
Provides clinical laboratory sciences students with the physiologic basis for practice in clinical laboratory sciences and an introduction to pathophysiology in preparation for their clinical experiences. Prereq: ANA 206; sophomore standing. (Same as NUR 825.)

**CLS 832 INTRODUCTION TO CLINICAL CHEMISTRY AND INSTRUMENTATION. (4)**
An introductory course in theory and practice of clinical chemistry. Emphasizes laboratory reporting, proper operation of laboratory equipment, quality control, trouble shooting laboratory instruments, and concern for the accuracy of patient data. Lecture, 2 hours; laboratory, 6 hours for 12 weeks. Prereq: Admission to clinical laboratory sciences professional program.

**CLS 833 INTRODUCTION TO CLINICAL HEMATOLOGY. (4)**
An introductory course in theory and practice of clinical hematology. Laboratory reporting, quality control, medical terminology and concern for the patient will be emphasized throughout the course. Lecture, two hours; laboratory, two three-hour laboratories per week for 12 weeks. Prereq: Admission to clinical laboratory sciences professional program.

**CLS 835 CLINICAL IMMUNOLOGY. (4)**
An overview of immunology with a molecular biological basis for the immune responses and the role of genetics in immunological disorders. Molecular biological techniques in the modern clinical laboratory will be emphasized. Prereq: Admission to the Clinical Laboratory Sciences professional program, or consent of the instructor.

**CLS 836 LABORATORY ORGANIZATION AND MANAGEMENT. (3)**
An overview of management with an emphasis of problem solving in the clinical laboratory setting. Content will include the management process, managing change, motivation, personnel issues, regulatory issues, delegation, problem solving, leadership, quality improvement strategies and techniques and other relevant topics. Prereq: Admission to the Clinical Laboratory Sciences professional program.

**CLS 837 COMPUTER APPLICATIONS IN CLINICAL SCIENCES. (2)**
Clinical applications of mainframe, networked, and personal computers will be presented. Topics include order entry, results reporting systems, instrument interfaces to purchasing and inventory, as well as practical applications of data base management for quality control, quality assurance, risk management, and personnel records. Lecture, one hour; laboratory, three hours per week. Prereq: Admission to the Clinical Laboratory Sciences professional program, or consent of the instructor.

**CLS 843 CLINICAL HEMATOLOGY LECTURES. (2)**
A study of the principles of hematologic methodologies and of disease processes such as the anemias and leukemias. Particular emphasis will be given to evaluation of methodologies and to correlation of laboratory data with disease. Prereq: Admission to senior year of clinical laboratory sciences curriculum or permission of division director.

**CLS 844 CLINICAL CHEMISTRY LECTURES. (3)**
A study of biologically important elements and compounds found in various body fluids in health and disease. Emphasis will be given to the theory and evaluation of various methodologies involved in the quantitation of these substances. Prereq: Admission to the senior year of the clinical laboratory sciences curriculum or permission of the division director.

**CLS 846 BODY FLUID ANALYSIS. (3)**
A study of qualitative and quantitative chemical and microscopic constituents of urine, cerebrospinal and other body fluids. Lecture, two hours; laboratory, three hours. Prereq: Admission to junior year in clinical laboratory sciences curriculum or permission of division director.

**CLS 851 BASICS OF CLINICAL MICROBIOLOGY. (2)**
This course is designed to acquaint the student with microbial pathogens causing infectious diseases, their structure, function and role in pathogenesis. The role of the clinical laboratory in isolation and identification will be emphasized. Prereq: Admission to the Clinical Laboratory Sciences professional program; concur: CLS 852.

**CLS 852 BASICS OF CLINICAL MICROBIOLOGY LAB. (1)**
In this course the student will gain knowledge and technical expertise in procedures related to the isolation and identification of selected clinical isolates. Principles related to media preparation and quality control will also be emphasized. Laboratory, three hours per week. Prereq: Admission to the Clinical Laboratory Sciences professional program; concur: CLS 851.

**CLS 854 MEDICAL PARASITOLOGY. (3)**
Detailed study of the protozoan and helminth parasites of man as found in blood, feces or other body tissues or fluids. Lecture, two hours; laboratory, two hours. Prereq: Admission to the clinical laboratory sciences professional program.

**CLS 855 CLINICAL SEROLOGY. (3)**
A study of the immune system in vitro to identify and quantify antigens and antibodies involved in the immune response to foreign substances as well as autoimmune diseases. In addition to the standard serological techniques, newer techniques such as flow cytometry, DNA techniques (Western blot), PCR, chemoluminescence and enzyme-based methodologies will be covered. Prereq: Admission to the Clinical Laboratory Sciences professional program, CLS 835 or consent of the instructor.

**CLS 856 CLINICAL BACTERIOLOGY LECTURES. (3)**
A review of human pathogenic microorganisms and their relationships to disease. Emphasis will be placed on laboratory diagnostic approaches to infectious disease. Prereq: Admission to the clinical laboratory sciences professional program or consent of division director.

**CLS 857 MEDICAL MYCOLOGY. (2)**
A brief course with emphasis on the techniques for isolation and identification of the systemic and subcutaneous fungi and the distinguishing cultural and microscopic characteristics of the dermatophytes. Prereq: Admission to the clinical laboratory sciences professional program.

**CLS 858 IMMUNOHEMATOLOGY LECTURES. (3)**
Study of immunohematology and blood banking applications in transfusion medicine. This course includes collection and processing of blood, blood group systems, and the handling of special problems in blood banking, such as transplantation. Prereq: Admission to the clinical laboratory sciences professional program and CLS 435 or equivalent.

**CLS 860 BLOOD COLLECTION. (1)**
Experience collecting venous and capillary blood specimens for many types of studies. This will include collection from both ambulatory and bed patients of all ages. May be repeated to a maximum of two hours. Offered on a pass-fail basis. Prereq: Admission to clinical laboratory sciences professional program or consent of instructor.

**CLS 863 CLINICAL HEMATOLOGY LABORATORY. (3)**
Practice and mastery of the basic skills required in a clinical hematology laboratory to include particle counting, cellular morphology and coagulation with an introduction to special methodologies used in clinical hematology for the diagnosis of diseases. Laboratory, six hours. Prereq: Concurrent registration in CLS 843.

**CLS 864 CLINICAL CHEMISTRY LABORATORY. (3)**
Practice in the performance of various types of techniques and use of instruments involved in quantitation of elements and compounds in various body fluids in health and disease. Laboratory, six hours. Prereq: Concurrent registration in CLS 844.

**CLS 866 CLINICAL BACTERIOLOGY LABORATORY. (3)**
Experience in the techniques of isolation and identification of pathogenic microorganisms from all types of clinical specimens. Laboratory, six hours. Prereq: Concurrent registration in CLS 856.

**CLS 868 IMMUNOHEMATOLOGY AND BLOOD BANKING LABORATORY. (2)**
Practice and mastery of the basic skills required in blood banking, including: determination of blood type, detection and identification of antibodies, compatibility testing and special techniques needed in diagnosis of immunohematologic disorders. Laboratory, four hours per week. Concur: CLS 858.

**CLS 870 CLINICAL LABORATORY SCIENCES SEMINAR. (1)**
This course will consist of selected discussions with departmental faculty, other medical center or visiting faculty, or attendance at medical grand rounds presentations. Lecture, one and a half hours per week. May be repeated to a maximum of two credits. Prereq: Admission to clinical laboratory sciences professional program.

**CLS 871 SURVEY OF HEMATOLOGY AND LABORATORY MATH. (2)**
An overview of basic mathematical computations used in common laboratory procedures. A review of structure, function and identification of abnormal blood cells. Prereq: Associate degree in Medical Laboratory Technology.

**CLS 872 CLINICAL CHEMISTRY SURVEY. (2)**
An overview of basic electronics used in laboratory instrumentation, and function and measurement of major serum analyses. Prereq: Associate degree in Medical Laboratory Technology.

**CLS 880 CLINICAL PRACTICUM IN CLINICAL LABORATORY SCIENCES. (12)**
A supervised clinical practicum which integrates theory and practice in clinical chemistry, hematology, blood bank and microbiology. Students must successfully complete all technical and professional components during the rotation, and pass a final comprehensive examination. Laboratory, 30-40 hours per week for 14 weeks. Prereq: Completion of senior year clinical laboratory sciences courses.

**CLS 881 PRACTICUM IN BLOOD BANKING. (1-4)**
A supervised clinical practicum in which theory and practice in blood banking are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: CLS 858 or equivalent.

**CLS 882 PRACTICUM IN CLINICAL CHEMISTRY. (1-4)**
A supervised clinical practicum in which theory and practice in clinical chemistry are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: CLS 844 and CLS 864.

**CLS 883 PRACTICUM IN CLINICAL HEMATOLOGY. (1-4)**
A supervised clinical practicum in which theory and practice in hematology are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: CLS 843 and CLS 863.

**CLS 884 PRACTICUM IN CLINICAL MICROBIOLOGY. (1-4)**
A supervised clinical practicum in which theory and practice in microbiology are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: CLS 854, 856, 857, 866.

**CLS 885 SPECIAL TOPICS PRACTICUM. (1-8)**
This course offers students an opportunity to observe and learn in areas of clinical laboratory sciences not found in the routine laboratory, such as flow cytometry, electron microscopy, DNA analysis. Rotations are arranged to meet needs of each student. May be repeated to a maximum of eight credits. Laboratory, 35-40 hours per week. Prereq: Enrollment in CLS professional program or consent of Division Chair.

**CLS 895 ADVANCED TOPICS IN CLINICAL LABORATORY SCIENCES (INDEPENDENT STUDY). (1-6)**
An elective for students in selected subjects in-depth or carry out a limited laboratory project. Prereq: Consent of Division Chair.

**# - New course** *** - Course change** **† - Course dropped**

## CME Chemical Engineering

**CME 002 THE ENGINEERING PROFESSION (FRESHMAN). (0)**
A continuation of CME 101. This course may be repeated indefinitely.

**CME 006 THE ENGINEERING PROFESSION (JUNIOR AND SENIOR). (0)**
Activities of the Student Chapter of the American Institute of Chemical Engineers (for junior and senior year chemical engineering students). Lecture: one hour per week. May be repeated three times. Prereq: Chemical engineering major.

**CME 101 INTRODUCTION TO CHEMICAL ENGINEERING. (1)**
An introduction to the chemical engineering profession including: problem-solving techniques, use of computers, computer problems and lectures by practitioners.

**CME 205 PROCESS PRINCIPLES I. (2)**
A first course in material and energy balances, units, conversions, tie elements, recycle, bypass, gas laws, and equations of state, heat effects, phase transitions, first law of thermodynamics. Prereq: CHE 115, C grade or better in MA 113, C average or better in CHE 105 and CHE 107, CS 221; prereq or concur: MA 114, PHY 231.

**CME 210 PROCESS PRINCIPLES II. (2)**
A second course in material and energy balances. Applications to separation operations, processes involving equilibrium reactions, and energy exchange. Process design problems are selected from contemporary case studies. Prereq: CME 205.

**CME 320 ENGINEERING THERMODYNAMICS. (3)**
Fundamentals of thermodynamics, review of first law, second and third laws, phase equilibria and chemical equilibria. Prereq: CME 210, MA 213, PHY 232 and engineering standing.

**CME 395 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (1-3)**
Individual work on some selected problems in the field of chemical engineering. May be repeated one time. Prereq: Engineering standing and approval of the chairperson of the department.

**CME 415 SEPARATION PROCESSES. (3)**
Separations based on both equilibrium stage concepts and mass transfer rate control are addressed for a range of chemical process operations, including distillation, gas absorption, extraction, adsorption, and membrane-based processes. Design problems are conceived to require computer-aided modeling and analysis. Prereq: CME 320, engineering standing.

**CME 420 PROCESS MODELING IN CHEMICAL ENGINEERING. (3)**
Applications of principles of material and energy balances, thermodynamics, heat and mass transfer, physical chemistry and numerical methods to problems in separation and transport processes and reactive systems. Prereq: CS 221, MA 214; prereq or concur: CME 320, ME 330, engineering standing.

**CME 425 HEAT AND MASS TRANSFER. (4)**
Fundamental principles of conduction and convective heat transfer, and diffusional and convective mass transfer. Design applications to heat exchanges and packed bed absorbers. Prereq: CME 320, ME 330, engineering standing.

**CME 433 CHEMICAL ENGINEERING LABORATORY. (3)**
A laboratory course emphasizing experimental work in the areas of fluid flow, heat transfer, mass transfer, and chemical reaction kinetics. Special consideration is given to the development of experimental acumen, mathematical and statistical data handling, report writing, and oral presentation. Lecture, one hour; laboratory, six hours per week. Prereq: CME 415, 420, 425; concur: CME 550, engineering standing.

**CME 455 CHEMICAL ENGINEERING PROCESS DESIGN I. (3)**
A lecture and problem-solving course devoted to the study of chemical engineering economics as it applies to the design of chemical process units and systems. Prereq: CME 415, CME 420, CME 425, ME 330, CS 221, and engineering standing.

**CME 456 CHEMICAL ENGINEERING PROCESS DESIGN II. (4)**
A lecture and problem-solving course intended to combine the principles of chemical engineering with optimization as they apply to the design of chemical processes. Results of each design case studied will be presented by both oral and written reports. Prereq: COM 199, CME 455, CME 550 and engineering standing.

**CME 462 PROCESS CONTROL. (3)**
Basic theory of automatic control devices and their application in industrial chemical plants is emphasized. Identification of control objectives, appropriate measurements and manipulations, and possible loops between these, requires integration of the control system with the original process design. Interactions between process units are analyzed using well-known analytical tools and design strategies. Prereq: Consent of instructor.

**CME 470 PROFESSIONALISM, ETHICS AND SAFETY. (1)**
Detailed lectures and supervised discussions on standards of ethics and safety as they relate to the engineering profession. Emphasis will be on safety in plant design and safety practice in the laboratory and plant. Sociologic problems inherent with air, water and waste management and professional ethics will be addressed. Prereq: Engineering standing.

**CME 471 SEMINAR. (1)**
Students carry out literature searches on assigned topics in engineering, prepare for and deliver formal and informal talks at least every two weeks, and submit written summaries of these presentations. Lecture, two hours per week. Prereq: COM 199 and engineering standing.

**CME 505 ANALYSIS OF CHEMICAL ENGINEERING PROBLEMS. (3)**
The application of numerical methods, differential equations, and transforms to complex chemical engineering problems. Prereq: MA 432G or consent of instructor.

**CME 515 AIR POLLUTION CONTROL. (3)**
Kinetics and equilibria of photochemical and "dark" atmospheric reactions. Atmospheric statics and dynamics including lapse rates, inversions, and vertical and horizontal air motion. Single and area source diffusion. Stack meterology. Prereq: CME 320 or ME 220.

**CME 550 CHEMICAL REACTOR DESIGN. (3)**
A lecture and problem course dealing with interpretation of rate data and development of performance equations for single and multiple reactor systems. A design problem will be selected for an industrially important chemical reaction system requiring computer solution. Prereq: CS 221, CME 420, CME 425, and engineering standing, or consent of instructor.

**CME 552 POLYMERIC MATERIALS. (3)**
Relating properties to structure; properties of polymer materials, mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: CHE 230 or CHE 236, or consent of instructor. (Same as MSE 552.)

**CME 554 CHEMICAL AND PHYSICAL PROCESSING OF POLYMER SYSTEMS. (3)**
Theory related to the chemical and physical processing of polymer systems, polymer chemistry, non-Newtonian flow behavior, stress and strain tensors, polymer processing operations and technology. Prereq: CHE 232 and CME 425, or consent of instructor. (Same as MSE 554.)

**CME 558 PRINCIPLES OF POLYMER CHARACTERIZATION AND ANALYSIS. (3)**
A lecture course exploring the fundamental chemical and physical aspects of a range of characterization methods as applied to polymeric systems; the primary objective will be the development of a broad understanding of the various tools available for polymer characterization both on the molecular level and as bulk materials. Prereq: CME 320, ME 330, or consent of instructor. (Same as MSE 558).

**CME 570 CHEMICAL SEPARATION AND MEASUREMENT FOR CHEMICAL ENGINEERS. (4)**
An engineering-oriented survey of modern topics in chemical measurement to include discussions of liquid extraction; liquid and gas chromatography; absorption spectroscopy; electrochemical processes; acid-base and complexation equilibria; operational amplifiers. Lecture, three hours; laboratory; three hours per week. Prereq: CME 320, CHE 440G, engineering standing or consent of instructor.

**CME 580 DESIGN OF RATE AND EQUILIBRIUM PROCESSES FOR WATER POLLUTION CONTROL. (3)**
The design of chemical and physical processes for the removal and concentration of organic, inorganic, and particulate pollutants from aqueous solution/suspension: adsorption, destabilization, disinfection, membrane processes, thermal processes, flow through beds of solids, etc. Prereq: CHE 440G, CME 425 and prereq or concur: CME 550 or consent of instructor.

**CME 599 TOPICS IN CHEMICAL ENGINEERING. (3)**
A detailed investigation of a topic of current significance in chemical engineering such as: contemporary energy topics, fuels development, membrane science, computer control of chemical processing. A particular topic may be offered twice under the CME 599 number. May be repeated to a maximum of six credits. Prereq: Engineering standing.

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics, and mathematics. For major work, a candidate must hold a bachelor's degree in chemical engineering or its equivalent.

**CME 620 EQUILIBRIUM THERMODYNAMICS. (3)**
The criteria for physical and chemical equilibria, including: predictive equations, solution theory, chemical activity, coupled chemical equilibria, and external constraints. Emphasis may be on vapor-liquid equilibrium, chemical reaction equilibrium, or complex ionic equilibria in dilute aqueous solutions and suspensions. Prereq: CHE 440G and CME 320 or consent of instructor.

**CME 621 NONEQUILIBRIUM THERMODYNAMICS. (3)**
An introductory course in the thermodynamics of irreversible processes, including: phenomenological equations relating flows and forces, Onsager's law, and entropy production in continuous processes. Prereq: CME 620, or ME 620, or consent of instructor.

**CME 625 PROPERTIES OF GASES AND LIQUIDS. (3)**
Development, discussion and application of intermolecular force laws as they apply to gases, liquids and mixtures: Chapman-Enskog kinetic theory, virial theorem, Buckingham (6-exp) potential, and theoretical and semitheoretical predictive equations. Estimation of thermodynamic and transport properties. Prereq: CME 620, CME 630, or consent of instructor.

**CME 630 TRANSPORT I. (3)**
A unified study of physical rate processes in liquids and vapors, including: mass, energy, and momentum transport, transport in chemically reacting systems, similarities, turbulence modeling, buoyance-induced transport and multicomponent diffusion. Prereq: ME 330 and CME 425 or consent of instructor.

**CME 631 TRANSPORT II. (3)**
A continuation of Transport I. Interphase transport of mass, energy, and momentum is discussed. Boundary Layer theory is applied to combined transport and chemical reaction. Theories of turbulent transport are examined. Prereq: CME 630 or consent of instructor.

**CME 635 STAGED MASS TRANSFER OPERATIONS. (3)**
Design and performance of vapor-liquid or liquid-liquid, and solid-liquid systems, particularly for multicomponent mixtures. Emphasis will depend upon student interest. Prereq: CME 412, 420, and 425.

**CME 637 BIOLOGICAL TRANSPORT PHENOMENA. (3)**
Selected topics concerning momentum and mass transfer in the cardiopulmonary system. Prereq: CME 630 or consent of instructor.

**CME 650 ADVANCED CHEMICAL REACTOR DESIGN. (3)**
Rate expressions for heterogeneous reaction kinetics; energy and mass transport within and external to reacting porous catalysts; design equations for fixed, moving and fluidized-bed reactors. Prereq: CME 550, CME 630, or consent of instructor.

**CME 671 BASIC ELECTRODE PROCESSES IN ELECTROCHEMICAL ENGINEERING. (3)**
Provides engineers with an introduction to electrochemical theory and measurement techniques, including relaxation methods. Selected topics in equilibrium electrochemistry, generalized theory of reversibility, double layer structural effects on charge transfer rates, organic redox reactions, chemical power systems, and biomedical engineering. Prereq: CME 620 or consent of instructor.

**CME 680 BIOCHEMICAL ENGINEERING. (3)**
Principles and design of processes involving biochemical reactions, including aerobic and anaerobic respirations and fermentations, and involving pure and mixed cultures. Energy considerations, heat and mass transfer, biochemical kinetics, and application to biological waste treatment. Prereq: CME 550, CME 630, CHE 440G or consent of instructor.

**CME 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CME 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**CME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**CME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**

**CME 771 SEMINAR. (0)**
Review of current literature in the field of chemical engineering, general discussion and presentation of papers on departmental research. Lecture, one hour per week. Required for all graduate students in chemical engineering.

**CME 779 MEMBRANE SCIENCES COLLOQUIUM. (1)**
Outstanding membrane scientists present their current research on biological and/or synthetic membranes. Students read a pertinent paper by the speaker prior to his/her talk and write a short paper on the talk; especially important is relevance of the main points of the talk to membrane science in general and the student's own research in particular. May be repeated to a maximum of six credits. (Same as BCH/CHE/PHA/PHR 779.)

**CME 780 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (1-3)**
Independent study, design, or research in chemical engineering topics. May be repeated to a maximum of 12 credits. Prereq: Approval of the departmental director of Graduate Studies.

## CNU Clinical Nutrition

**CNU 601 CLINICAL NUTRITION. (4)**
An analysis of the process by which man ingests, assimilates and utilizes all of the constituents of food in health and disease. Relationship of biochemical and physiological factors to the nutrient requirements of the human body. Evaluation of dietary status and rationale of dietary management. Course to be taught by lectures, clinical rounds, conferences and written and oral case studies. Prereq: PGY 502, 503; consent of instructor. BCH 501 to be taken concurrently.

**CNU 602 CURRENT TOPICS IN CLINICAL NUTRITION.** (1)
This course is designed to develop in students independent thinking and critical analysis related to various clinical nutrition issues. These skills will be developed through reading assignments related to clinical nutrition. Prereq: CNU 601.

**CNU 603 NUTRITIONAL IMMUNOLOGY.** (1-2)
Theories and mechanisms of immunity will be introduced. The effects of nutrition on immunity will be discussed from experimental and clinical perspectives. Lecture, two hours per week. Prereq: PGY 412G and CNU 601, or consent of instructor.

**CNU 604 LIPID METABOLISM.** (1-2)
Emphasis on factors influencing the absorption of fats and fatty acids, distribution and incorporation of fatty acids into body tissues, the biosynthesis of and catabolism of fatty acids, as well as cholesterol, bioactive eicosanoid production and the involvement of fats in the disease process. Lecture, two hours per week. Prereq: BCH 401G, PGY 412G and CNU 601 or consent of instructor.

**CNU 701 ADVANCED CLINICAL NUTRITION.** (3)
A course dealing primarily with the clinical application of the principles of nutrition, e.g., gastrointestinal disease and nutrition, nutrition and cancer, electrolytes and acid-base balances, drug-nutrient interactions, nutrition in the burn patient and pediatric nutrition. Prereq or concur: CNU 601.

**CNU 702 ADVANCED CLINICAL NUTRITION INTERNSHIP.** (4)
An internship designed to foster the team concept of patient care. The effects of metabolic diseases on nutritional requirements will be considered as well as the interaction of therapeutic drugs. Other efforts will be directed toward laboratory data interpretations, patient education and the coordination with other health professionals. A major portion of the above described activities is associated with daily clinical rotations through various medical services, e.g., surgery, pediatrics. Prereq: CNU 701, admission to CNU graduate program.

**CNU 780 CLINICAL NUTRITION RESEARCH.** (1-5)
This course is designed to expose students to scientific research methods, including library research, laboratory experience, data preparation and analysis, etc., utilizing a project of mutual interest to the student and instructor. One semester required, credits to be arranged. May be repeated to a maximum of five credits.

**CNU 781 CLINICAL NUTRITION SEMINAR.** (1)
Seminar presentations on current topics of interest in clinical nutrition.

**CNU 782 INDEPENDENT STUDY.** (1)
Student will investigate a particular aspect of clinical nutrition with appropriate presentation.

**CNU 800 APPLIED NUTRITION FOR THE HEALTH PROFESSIONS: FUNDAMENTALS OF NUTRITION SCIENCE IN NORMAL LIFE CYCLES.** (1)
An interdisciplinary approach to applied nutrition and its role in primary, secondary, and tertiary health care delivery. Covers the fundamental principles and concepts of nutrition science as applied to the human life cycle. Prereq: Currently enrolled in the College of Medicine, Nursing, Dentistry, Pharmacy, or Allied Health Professions. Completion of at least one semester of physiology; one semester of organic chemistry or biochemistry, and preferred, clinical exposure. Special examination credit is possible for this course.

## COM Communication

**COM 101 INTRODUCTION TO COMMUNICATIONS.** (3)
An introduction to the process of communication as a critical element in human interaction and in society. Designed to enhance effective communication and informed use of the mass media.

**COM 181 BASIC PUBLIC SPEAKING.** (3)
A course designed to give the student platform experience in the fundamentals of effective speaking.

**COM 184 INTERCOLLEGIATE DEBATING.** (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of two credits.

**COM 199 PRESENTATIONAL COMMUNICATION SKILLS.** (1)
Introduces students to fundamental oral communication skills needed to prepare and present messages effectively. Note: This course will not substitute for the three-credit course COM 181, Basic Public Speaking. It will count toward partial completion of the oral communication skills component of the University Studies Program.

**COM 249 MASS MEDIA AND MASS CULTURE.** (3)
An examination of the interplay between the technology and content of the mass communications media and culture. Prereq: COM 101 or SOC 101 or its equivalent. (Same as SOC 249.)

**COM 252 INTRODUCTION TO INTERPERSONAL COMMUNICATION.** (3)
Examines basic verbal and nonverbal elements affecting communication between individuals in family, peer group, and work contexts. Course requires participation in activities designed to develop interpersonal communication skills. Topics include: strategy development, relationship and conversation management, effective listening, conflict management, defensive communication, communication anxiety, cultural/sex differences in communication style.

**COM 281 COMMUNICATION IN SMALL GROUPS.** (3)
A study of communication processes in small group situations. Topics include conflict, leadership, and decision-making. Students will participate in group discussion and develop skills in analyzing group performance.

**COM 283 ARGUMENTATION AND DEBATE.** (3)
A course in the theory of argument, with practice in the several forms of debate.

**COM 284 INTERCOLLEGIATE DEBATING.** (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of four credits.

**COM 285 APPLIED PHONETICS.** (3)
Study of the phonetic structure of English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as EDS 285.)

**COM 287 PERSUASIVE SPEAKING.** (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages.

**COM 288 ORAL INTERPRETATION.** (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature.

**COM 319 WORLD MEDIA SYSTEMS.** (3)
A comparison of the communications media in different countries of the world and the theories used to justify them. How various political and social systems affect the media and how the media affect the societies in which they exist. Prereq: COM 101, TEL 101 or consent of instructor. (Same as TEL 319.)

**COM 325 BUSINESS AND INDUSTRIAL COMMUNICATION.** (3)
Reviews the principles of communication in organizations. The most common organizational communication variables are reviewed, e.g., communication distortion, conflict, power, managerial leadership style, roles, interviewing, information overload and underload. Emphasis is on application of the principles reviewed to the organizational setting. Simulations, exercises, case studies, and visits to organizations are used to accomplish this goal. **Enrollment priority given to College of Communications majors.**

**COM 350 LANGUAGE AND COMMUNICATION.** (3)
An introductory survey course covering syntactic, semantic and pragmatic aspects of language as they relate to communication. Language learning, sign typologies, psycholinguistics, and the nature of meaning are selected topic areas. Emphasis is on behavioral, communication approach. Not open to students who have completed a 300-level (or above) linguistic class.

**COM 351 INTRODUCTION TO COMMUNICATION THEORY.** (3)
Considers various theoretical perspectives which lead to a more thorough understanding of communication processes. Begins with discussion of the development of theory and inquiry. Includes perspectives of systems, cognitive, behavioral, affective, symbolic interactionist, dramatic, cultural and social reality, interpretive and critical theories.

**COM 365 INTRODUCTION TO COMMUNICATION RESEARCH METHODS.** (3)
An introduction to the methods of philosophy of scientific research into the origins, nature, and effects of communication processes. Provides skills necessary for designing research projects and for interpreting and critically evaluating research results. Prereq: One course in statistics.

**COM 381 MANAGING COMMUNICATION IN LARGER GROUPS: THE PARLIAMENTARY PROCESS.** (3)
A study of the principles and history governing decision-making in voluntary organizations and deliberative assemblies. Social and political rationales for group activity, as well as principles of decision making in small groups and larger assemblies. Emphasis is on both traditional and newer forms of parliamentary practice.

**COM 395 INDEPENDENT WORK.** (1-3)
Research and study of special topics in communication. The student proposes the specific study to be undertaken and formally contracts with a faculty supervisor for guidance and evaluation. Ordinarily, projects will require the production of written materials as a basis for the evaluation. May be repeated to a maximum of six credits. Prereq: Either a major and a standing of 3.0 in COM courses or consent of instructor.

**COM 399 INTERNSHIP IN COMMUNICATION.** (1-3)
Provides field-based experience in communication through work in industry, government, education, etc. Pass-fail only. (Three hours can be counted towards communication major requirements.) May be repeated to a maximum of six credits. Prereq: 3.0 GPA, junior/senior Communication majors only, consent of Department Internship Director prior to registration, and completion of departmental learning contract.

**COM 419 INTERNATIONAL AND INTERCULTURAL COMMUNICATION.** (3)
Studies interpersonal and media communication systems and policies of various cultures within and across nations. Considers the social, economic, and political implications of advances in communication technology. Prereq: COM 319.

**COM 449 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION.** (3)
The relationship between the organization of modern society and its communication media. Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: SOC/COM 249 or its equivalent. (Same as SOC/EDC 449.)

**COM 452 STUDIES IN INTERPERSONAL COMMUNICATION.** (3)
Examines current theory and research on the nature and development of interpersonal communication ability. Topics include: foundations of communicative development, development of strategic communicative skills, relational communications, conversation analysis, cultural and institutional influences on the development of interpersonal communication ability. Prereq: COM 252.

**COM 453 MASS COMMUNICATION AND SOCIAL ISSUES.** (3)
A course devoted to the examination of criticism of the mass media and an evaluation of the relationship of mass communication to contemporary social issues. Prereq: COM 249.

**COM 454 HONORS SEMINAR IN COMMUNICATION.** (3)
Intensive study of a communication topic in professional, theoretical, and research methodology areas of communication. This seminar will not count toward a communication major; it will count toward credits for graduation. Prereq: 3.3 GPA in communication major.

**COM 482 PERSUASION.** (3)
The principles and methods of persuasion. Of particular benefit to teachers, lawyers, business majors, and other persons whose work is concerned with motivating human conduct.

**COM 483 STUDIES IN ARGUMENTATION.** (3)
A study of the theories of argumentation and debate as derived from rhetorical, philosophical and psychological sources; critical examination of representative examples of oral argument.

**COM 525 ORGANIZATIONAL COMMUNICATION.** (3)
This course reviews theories and research relevant to an understanding of the organizational communication process. Emphasis is on communication in an organization at the interpersonal, small group and whole organizational level. Prereq: COM 325 or consent of the instructor.

**COM 571 HEALTH COMMUNICATION.** (3)
This course offers a broad introduction to communication in health care delivery from a variety of perspectives, combining interpersonal, organizational, and semiotic approaches. Prereq: Consent of instructor.

**COM 581 STUDIES IN SMALL GROUP COMMUNICATION CONTEXTS.** (3)
Examines current theory and research on the nature and development of small group discussion. Includes topics of leadership, interpersonal relations and roles, group goals vs. individual goals, and networks. Prereq: COM 281.

**COM 584 TEACHING OF SPEECH COMMUNICATION.** (3)
An analysis of the field of speech education as related to the teacher of speech.

**COM 591 SPECIAL TOPICS IN COMMUNICATION (Subtitle required).** (1)
Intensive study of a specialized topic area in communication. May be repeated to a maximum of six credits under different subtitles. A maximum of three credits can be counted toward a Communication major. Lecture, three hours per week for five weeks. Prereq: Consent of instructor.

## CPC Clinical Pastoral Counseling

**CPC 501 PERSPECTIVES IN RELIGION AND HEALTH.** (3)
An interdisciplinary study of significant religious components in health. Prereq: Consent of instructor.

**CPC 899 CLINICAL PASTORAL PRACTICUM.** (1-2)
Students participate in a program of supervised learning consistent with one unit of CPE, according to Standards of the Association for Clinical Pastoral Education, Inc. Each student is assigned to at least one area of the University Hospital for clinical pastoral work. Evening, weekend, and/or overnight assignments may be expected. The course work consists of instruction, group interaction, and experience with patients in the University Hospital. An individualized learning contract is required for each student. May be repeated to a maximum of 18 credits. Offered on a pass/fail basis only. Prereq: Baccalaureate degree, consent of instructor.

## CS Computer Science

**CS 101 INTRODUCTION TO COMPUTING I.** (3)
An introduction to computing and its impact on society from a user's perspective. Topics include computation using spreadsheets, beautification using text formatters and word processors, information management with database managers, and problem solving through program design and implementation using a simple programming language. Not open to students who have received credit for higher level computer science courses.

**CS 121 COMPUTER SCIENCE I.** (4)
Fundamentals of computer science including algorithm design and testing, specification, control structures, lists, simple searching and sorting algorithms, recursion, record and file structures, and simple applications. A high-level procedural language is presented. This is the usual first course for students wishing to study computer science above the freshman level.

**CS 122 COMPUTER SCIENCE II.** (4)
A continuation of CS 121 which presents basic machine organization, representations of elementary data types, external file processing, and list processing. Simple data structures are presented for trees, queues, and lists. This course is a prerequisite for most upper level computer science courses. Prereq: CS 121.

**CS 221 FIRST COURSE IN COMPUTER SCIENCE FOR ENGINEERS.** (2)
Characteristics of a procedure-oriented language; description of a computer as to internal structure and the representation of information; introduction to algorithms. Emphasis will be placed on the solution of characteristic problems arising in engineering. Prereq: MA 113. Not open to students who have received credit for CS 150.

**CS 222 COMPUTER SCIENCE FOR ELECTRICAL ENGINEERS.** (3)
Characteristics of a procedure-oriented language; high-level description of computer structure and information representation schemes; introduction to algorithm development and design. Emphasis will be placed on the programming tools used in software engineering. Tools suitable for programming development on microcomputers will be emphasized. Not open to students who have received credit for CS 121 or CS 221.

***CS 223 COMPUTER SCIENCE FOR CIVIL ENGINEERS.** (2)
An introduction to computer-assisted problem solving for civil engineering students using a microcomputer based procedure-oriented language; a description of internal structure and representation of information; an introduction to algorithms. Emphasis will be placed on the solution of characteristic problems arising in civil engineering. Prereq: MA 113, CE 121.

**CS 245 INTRODUCTION TO LOGIC AND DISCRETE COMPUTER MATHEMATICS.** (3)
Introduction to basic mathematical and logical concepts which form the foundation of computer science. Main topics of the course include: propositional and predicate calculi, set theory (including the theory of relations and functions), Boolean algebra, introduction to the logic programming, and introduction to combinatorics. Prereq: CS 121.

**CS 250 COMPUTER ORGANIZATION.** (3)
Number systems, memory organizations, addressing schemes. Representation of data and instructions. Machine language, assembler languages, macros and basic input/output. Prereq: CS 121 or CS 221.

**CS 270 FILE PROCESSING.** (3)
Data management techniques for sequential, direct, and linked access; file structures; list structures; design of large programming systems. Prereq: CS 122.

**CS 321 INTRODUCTION TO NUMERICAL METHODS.** (3)
Floating point arithmetic. Numerical linear algebra: elimination with partial pivoting and scaling. Polynomial and piecewise polynomial interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computer center. Prereq: MA 213 and CS 221 or equivalent. Knowledge of a procedural computer language is required. (Same as MA 321.)

**CS 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE.** (3)
Topics include permutations, combinations and partitions; inclusion-exclusion principle; generating functions and recurrence relations; elementary algorithms concerning graphs and trees; generation of random combinatorial and graphical examples; Boolean algebra, Boolean functions, switching circuits and mathematical logic; introduction to algebraic coding theory. Prereq: CS 245 and CS 270. Restricted to computer science, electrical engineering, mathematics and mathematical sciences majors. Others by permission. (Same as MA 340.)

**CS 370 DATA STRUCTURES.** (3)
Basic data structures and associated algorithms. Arrays, stacks and queues, linked lists, trees, graphs, and sorting algorithms. Prereq: CS 250 and CS 270. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 380 MICROCOMPUTER ORGANIZATION.** (3)
Hardware and software organization of a typical computer; machine language and assembler language programming, interfacing peripheral devices, and input-output programming; real-time computer applications, laboratory included. Prereq: EE 280 or CS 245. (Same as EE 380.)

**CS 395 INDEPENDENT WORK IN COMPUTER SCIENCE.** (2)
A course for computer science majors only. A problem, approved by the chairperson of the department, provides an opportunity for individual research and study. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department and consent of instructor.

**CS 415G GRAPH THEORY.** (3)
Theory of linear undirected graphs, including definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. Applications of algorithms to operations research, genetics and other areas. About 55 percent of the course will be on general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: Consent of instructor. (Same as MA 415G.)

**CS 416G PRINCIPLES OF OPERATIONS RESEARCH I.** (3)
The course is an introduction to modern operations research and includes discussion of modeling, linear programming, dynamic programming, integer programming, scheduling and inventory problems and network algorithms. Prereq: MA 213 or equivalent. (Same as MA 416G.)

**CS 420G COMPILERS FOR ALGORITHMIC LANGUAGES.** (3)
The techniques of processing, specifying, and translating high level computer languages are studied. Topics include finite stat machines and lexical analysis, context-free grammars for language specification, attributed translation grammars, language parsing, and automatic generation of compilers by SLR, LALR, and other methods of analyzing context-free grammars. Other topics may include code optimization, semantics of programming languages and top-down parsing. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 422 NUMERICAL SOLUTIONS OF EQUATIONS.** (3)
Linear equations: Gaussian elimination, special linear systems, orthogonalization, eigenproblem, iterative methods. Nonlinear equations: solutions of equations in one variable, solutions of systems of nonlinear equations. Optimization. Prereq: CS/MA 321 and MA 322; or consent of instructor. (Same as MA 422.)

**CS 440 FOUNDATIONS OF COMPUTING.** (3)
An introduction to the theoretical foundations of computing via automata and formal language models of computation such as Turing machines, finite automata, push down machines, regular sets, and context free grammars. Applications to programming, compiling, and computing systems. Prereq: CS 340. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 450G FUNDAMENTALS OF PROGRAMMING LANGUAGES.** (3)
An intensive study of fundamental programming concepts exhibited in current high level languages. Concepts include recursion, iteration, coroutines, multiprocessing, backtracking, pattern-matching, parameter passing methods, data structures, and storage management. Typical languages studied are SNOBOL, LISP, PASCAL, and APL. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

***CS 470G SYSTEMS SOFTWARE.** (3)
A study of the use and construction of system software, including assemblers, macro-processors, linkers, loaders, interrupt handlers, and elementary operating systems. Software appropriate for use on small mini/micro computer systems will be emphasized. Prereq: CS 370 or CS 250 and EE 280. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 505 DATABASE MANAGEMENT SYSTEMS.** (3)
This course is primarily concerned with the definition, organization, and manipulation of a database. An overview of the goals of database management is examined. The database management process is broken down into its four constituent parts: data definition, data manipulation, data retrieval, and report generation. Attempts toward standardization in database management are presented with emphasis on the CODASYL activities. The concept of shared files and the deadlock problem are presented. A number of general database management systems are surveyed, and at least one case study is examined in detail. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 522 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA I.** (3)
Review of basic linear algebra from a constructive and geometric point of view. Factorizations of Gauss, Cholesky and Gram-Schmidt. Determinants. Linear least squares problems. Rounding error analysis. Stable methods for updating matrix factorizations and for linear programming. Introduction to Hermitian eigenvalue problems and the singular value decomposition via the QR algorithm and the Lanczos process. Method of conjugate gradients. Prereq: MA 322. (Same as MA 522.)

**CS 537 NUMERICAL ANALYSIS.** (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent or graduate standing or consent of instructor. Knowledge of a procedural computer language is required. (Same as EGR/MA 537.)

**CS 538 NUMERICAL ANALYSIS II.** (3)
A continuation of CS/EGR/MA 537. Roots of a nonlinear equation and minimization of a function of a single variable. Linear difference equations. Numerical methods for ordinary differential equations: initial value problems, and elementary techniques for two-point boundary value problems. Prereq: A grade of B or better in CS/MA 321 or CS/EGR/MA 537 or equivalent. (Same as MA 538.)

**CS 540 SYSTEMS SIMULATION.** (3)
Computer simulation techniques including building and utilizing deterministic and stochastic models for digital computers, Monte Carlo. Prereq: CS 121 and a course in statistics or probability.

**CS 545 COMPUTER GRAPHICS.** (3)
The problems of representing and manipulating graphical information in computers are discussed. An overview of the hardware and software techniques is presented for using refresh, storage, and raster scanning devices. Two-dimensional transformations, clipping, and windowing algorithms are developed. The use of display files, graphical databases, and input devices is covered. Three-dimensional graphics is included to present painting algorithms, solid models, and shading. Prereq: MA 213 and CS 370, or consent of instructor. Restricted to Computer Science and Electrical Engineering majors. Others by permission.

**CS 555 LOGIC FOR COMPUTER SCIENCE.** (3)
The course exposes students to intermediate areas of logic, model theory, recursion theory and set theory (basic undergraduate logic is covered by CS 245). It creates foundations for Theory (CS 575 and subsequent courses), Artificial Intelligence (CS 560, CS 660), Expert Systems, and Natural Language Processing areas. Prereq: CS 245.

**CS 560 ARTIFICIAL INTELLIGENCE.** (3)
This course is primarily concerned with general problem-solving methods: production systems, searching of graphs, and automated theorem-proving methods, in particular the resolution method and its variants. Topics include methods of heuristics, games on trees, and minimax methods, as well as a study of various knowledge-representation schemes such as frames, prototypes, predicate logic and basic methodology of expert systems. Prereq: CS 245, CS 340, and CS 370.

**CS 570 OPERATING SYSTEMS DESIGN.** (3)
Concurrent processes, resource management, protection, file management, deadlocks, and memory management. Prereq: CS 470. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 575 THEORETICAL ASPECTS OF COMPUTING.** (3)
Theoretical considerations in computer science. Topics include computability, unsolvability, automata and formal language theory, verification, and computational complexity. Prereq: CS 340. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 580 ALGORITHM DESIGN.** (3)
The design of efficient algorithms on data structures such as lists, trees, sets and graphs. Topics include: sorting, searching and pathfinding by techniques such as divide-and-conquer, back tracking and the greedy method. Prereq: CS 370 and 440. Restricted to computer science and electrical engineering majors. Others by permission.

**CS 585 INTERMEDIATE TOPICS IN COMPUTER SCIENCE (Subtitle required).** (3)
Topics to be selected by staff. May be repeated to a maximum of six credits, but only three credits may be earned by a student under the same topic. Prereq: Restricted to computer science and electrical engineering majors. Others by permission.

***CS 587 MICROCOMPUTER SYSTEMS DESIGN.** (3)
A course in the design of microcomputer systems for hardware engineers which includes the following topics: use of uncommitted logic arrays in instruction set design; hardware support for operating systems and programming languages; customizing microcomputers for specific execution environments; and control of concurrency. Prereq: EE 581 and EE 583, or consent of instructor, engineering standing or upper division computer science standing. (Same as EE 587.)

**CS 610 MASTER'S PROJECT.** (3)
Design and implementation of a large computing project under the supervision of a member of the graduate faculty. Prereq: Satisfactory completion of the departmental foundational examinations.

**CS 612 INDEPENDENT WORK IN COMPUTER SCIENCE.** (1-3)
Reading course for graduate students in computer science. May be repeated to a maximum of nine credits. Prereq: Overall standing of 3.0, and consent of instructor.

**CS 622 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA II.** (3)
Numerical solution of matrix eigenvalue problems and applications of eigenvalues. Normal forms of Jordan and Schur. Vector and matrix norms. Perturbation theory and bounds for eigenvalues. Stable matrices and Lyapunov theorems. Nonnegative matrices. Iterative methods for solving large sparse linear systems. Prereq: MA 522 or equivalent. (Same as MA 622.)

**CS 630 GEOMETRIC MODELING.** (3)
This course discusses methods for design, modeling, representation, and generation of solids. Topics of curve design, surface design, solid modeling, shapes, and inter-section methods will be covered. Prereq: CS 545, CS 321.

**CS 635 IMAGE PROCESSING.** (3)
The course outlines applications of image processing and addresses basic operations involved. Topics covered include image perception, transforms, compression enhancement, restoration, segmentation, and matching. Prereq: Graduate standing and consent of instructor. (Same as EE 635.)

**CS 636 COMPUTER VISION.** (3)
Topics of human visual system will be discussed first. Then approaches to implementation of visual processes by computers will be described. Prereq: CS/EE 635.

**CS 641 ADVANCED COMPILER DESIGN II.** (3)
Optimization, special purpose languages, compiler-compiler, industrial compiler practice. Prereq: CS 541 or consent of instructor.

**CS 642 DISCRETE EVENT SYSTEMS.** (3)
The objective of the course is to prepare students for research in the field of supervisory control of discrete event systems (DES's). Logical models, supervising control. Stability and optimal control of DES, complexity analysis and other related research areas will be covered. Prereq: Graduate standing or consent of instructor. (Same as EE 642.)

**CS 645 COMPUTER NETWORKS.** (3)
The focus of the course will be on learning various principles and techniques employed in the development of computer communication networks. A study of International Standards Organization's (ISO) seven layer Open Systems Interconnections (OSI) model and the U.S. Department of Defense's ARPA Internet model will be covered. The course will cover details of link and network layer under the OSI model, will examine the model of internetworking with particular emphasis on DARPA Internet. Prereq: CS 570.

**CS 650 PROBLEM SEMINAR.** (3)
A seminar on the identification, analysis, formulation and solution of problems amenable to computer solution. Presupposes knowledge of calculus and programming. Prereq: Consent of instructor.

**CS 655 DESIGN OF PROGRAMMING LANGUAGES.** (3)
A study of techniques for designing programming languages and implementing processors for them. Emphasis is placed on programming languages exhibiting powerful and high level features such as nondeterminism and pattern-directed procedure invocation. The course includes the writing of actual processors. Prereq: CS 575 or CS 580.

**CS 660 TOPICS IN ARTIFICIAL INTELLIGENCE (Subtitle required).** (3)
Advanced topics chosen from the following: knowledge representation, knowledge acquisition, problem solving, very high-level programming languages, expert systems, intelligent and deductive databases, automated theorem proving. May be repeated to a maximum of six credits, but only three credits may be earned under the same topic. Prereq: CS 505 and CS 560 or consent of instructor.

**CS 674 HEURISTIC ALGORITHMS.** (3)
Advanced topics in algorithm design emphasizing the application of various heuristics. The course will treat active research topics. These topics include graph algorithms, parallel algorithms, randomization, linear and integer programming, VLSI and geometry problems. Prereq: CS 575 and CS 580. (Same as OR 674.)

**CS 675 THEORY OF COMPUTATION.** (3)
Computability by Turing Machines and algorithms. The predicate calculus, syntax, semantics, natural deduction, and the resolution method. Program verification and flowchart schemes. The fixpoint theory of programs. Prereq: CS 575.

**CS 676 PARALLEL ALGORITHMS.** (3)
The study of intrinsic parallelism in computational problems and the design of fast and efficient parallel algorithms. Parallel algorithms for prefix computation, selection, merging, sorting, routing, arithmetic, graph, and systolic algorithms. Prereq: CS 580.

**CS 677 COMPUTATIONAL GEOMETRY.** (3)
Design and analysis of algorithms and data structures for geometric problems. The particular groups of problems addressed include convex hull construction, proximity, Voronoi Diagrams, geometric search, intersection. Prereq: CS 580.

**CS 679 ADVANCED GRAPH ALGORITHMS.** (3)
The design of algorithms for graph problems. In particular, the design of efficient algorithms for optimization problems on graphs, such as minimum spanning tree, shortest paths, maximum matching and maximum flow problems. Design of heuristic (approximation) algorithms. Search trees, heaps, and their self-adjusting variants. Methods of estimating algorithm performance: worst-case analysis, average-case analysis, amortization. Prereq: CS 580 or consent of instructor.

**CS 680 SEMINAR IN COMPUTER SCIENCE.** (2)
May be repeated to a maximum of four credits. Prereq: Consent of instructor, or two 500-level computer science courses.

**CS 682 SWITCHING THEORY.** (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 280 or consent of instructor. (Same as EE 682.)

**CS 683 FINITE-STATE MACHINES.** (3)
Analysis and synthesis of sequential machines via state-tables and regular expressions. Equivalence, minimization and decomposition of machines. Partitions and structure-theory. Identification and diagnosis of finite-state machines by means of input-output experiments. Linear, finite-memory, and information-lossless machines. Prereq: EE 280. (Same as EE 683.)

**CS 685 SPECIAL TOPICS IN COMPUTER SCIENCE (Subtitle required).** (3)
Topics to be selected by staff. May be repeated to a maximum of six credits but only three credits may be earned under the same topic. Prereq: Consent of instructor or two 500-level computer science courses.

**CS 686 SPECIAL TOPICS IN THE THEORY OF COMPUTATION (Subtitle required).** (3)
Advanced topics in the theory of computation and the design and analysis of algorithms, including heuristic approaches for algorithm design, parallel computation, flow problems, parallel and concurrent processes and other areas of current research interest. May be repeated to a maximum of six credits but only three credits may be earned under the same topic. Prereq: Consent of instructor or CS 575 and 580.

**CS 687 SPECIAL TOPICS IN SOFTWARE (Subtitle required).** (3)
Topics to be selected by staff. May be repeated to a maximum of six credits but only three credits may be earned under the same topic. Prereq: Consent of instructor or two 500-level computer science courses.

**CS 688 NEURAL NETWORKS.** (3)
The purpose of this course is to introduce various aspects of the neural networks and neurocomputing. The course starts with an introduction to Learning Machines and analyzes various learning algorithms such as Hebbian, Grossberg's and Kohonen's learning algorithms. Some of the neural networks that will be studied in detail are: Backpropagation nets, Hopfield nets, Adaptive Resonance Theory, Adaline and Madalines, Kohonen's Self learning nets, BAMs, Neocognition, etc. Students will implement a minimum of three learning algorithms. Prereq: Graduate standing. (Same as EE 688.)

**CS 689 SPECIAL TOPICS IN NUMERICAL COMPUTING (Subtitle required).** (3)
Prereq: Consent of instructor or two 500 level computer science courses.

**CS 690 OPERATING SYSTEMS THEORY.** (3)
An advanced study of operating systems theory including cooperating sequential processes, processor scheduling, paging systems, and memory management. Prereq: CS 570.

**CS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**CS 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**CS 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

## DIP Diplomacy and International Commerce

**DIP 720 ECONOMIC STATECRAFT.** (3)
This seminar course will explore how economic values and choices shape economic options, and the techniques used to pursue them in the diplomatic arena. Trade and fiscal techniques, financial policies, and sanctions will be explored in relationship to the interplay between economic and political/international relations theory, and the relevance of economic statecraft to achieving both economic and noneconomic goals.

**DIP 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**DIP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

***DIP 777 RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS.** (3)
This seminar focuses on research strategies that can be utilized in dealing with problems in international relations. May be repeated once with consent of instructor. Prereq: PS 674 or consent of instructor.

**DIP 795 SPECIAL PROBLEMS IN DIPLOMACY AND INTERNATIONAL COMMERCE.** (3)
Specially designed independent study course taken under the supervision of various instructors. May be repeated to a maximum of six credits. Prereq: Permission of instructor.

## DIS Decision Science and Information Systems

**DIS 300 QUANTITATIVE ANALYSIS IN OPERATIONS MANAGEMENT.** (3)
A study of quantitative approaches to operations management, including decision support systems in decision making applications and efficiency considerations in both service and manufacturing operations. Prereq: CS 101, ACC 202, ECO 261, STA 291, MA 113 or MA 123, 162.

**DIS 320 MANAGEMENT INFORMATION SYSTEMS.** (3)
An introduction to information systems for management. Includes basic systems concept, methodology of systems analysis, and implementation of management information systems. Also provides an introduction to decision support systems, database management concepts and design methods, with emphasis on managerial problems related to these systems. Prereq: CS 101.

**DIS 350 QUANTITATIVE ANALYSIS IN MANAGEMENT.** (3)
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: MA 113 (or MA 162 and 123), STA 291 (or STA 292, 293, 294).

**#DIS 390 SPECIAL TOPICS IN DECISION SCIENCE AND INFORMATION SYSTEMS (Subtitle required).** (3)
Readings, projects, lectures and/or discussions to illuminate current topics of special interest or concern in decision science and information systems. May be repeated to a maximum of six credits. May not be repeated under the same title. Prereq: DIS 300.

**DIS 395 INDIVIDUAL WORK IN DECISION SCIENCE AND INFORMATION SYSTEMS.** (1-3)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: Approval of instructor and chairperson.

**DIS 406 PRODUCTION AND INVENTORY CONTROL.** (3)
This course covers advanced topics in inventory and production control including forecasting, planning horizon issues, dynamic lot sizing, reorder point determination, optimal periodic and continuous review policies, multiproduct and multifacility inventory problems, multistage shop scheduling, flow-shop scheduling. Prereq: DIS 300, 350, ECO 391.

**DIS 450 DECISION ANALYSIS.** (3)
The purpose of this course is to provide students with methodologies of problem solving by developing (a) their analytical maturity, (b) their ability to identify problem-generated alternative actions, and (c) their ability to choose among alternative courses of actions. Prereq: Senior standing in College of Business and Economics and DIS 300. (Same as MGT 450.)

**DIS 506 PRODUCTIVITY AND QUALITY CONTROL.** (3)
This course covers advanced topics in productivity and quality control including acceptance sampling, manufacturing control, process control, reliability, product design and process selection, job design, work measurement, and time and motion studies. Prereq: DIS 300, ECO 391.

**DIS 520 ADVANCED BUSINESS DATA PROCESSING AND INFORMATION.** (3)
An examination of the use of computers as an aid to business and economic decision making, information, and related problems in business and economics. Prereq: DIS 320 or equivalent, DIS 350.

**DIS 600 PRODUCTION MANAGEMENT.** (3)
This course exposes the MBA generalist to the functional area of production in both manufacturing and service sectors. Topics include tactical decisions in production and operative relationships with corporate strategy. The course emphasizes operations planning and control. Prereq: Graduate standing; MGT 611, ECO 610, ACC 628, DIS 650, ECO 611, FIN 600, DIS 651, MKT 600.

**DIS 611 THE MANAGEMENT OF COMPUTER INTEGRATED MANUFACTURING.** (3)
This course is to provide a broad introduction to the state of the art developments in computer integrated manufacturing systems and the problems of managing such technologies and systems. Topics dealing with the evolving "factory of the future" such as computer aided design, computer aided manufacturing, group technology, flexible manufacturing systems, etc., will be studied. Strategic and managerial implications will be emphasized. Prereq: DIS 600.

**DIS 620 MANAGEMENT INFORMATION SYSTEMS IN DECISION MAKING.** (3)
In-depth consideration of the value of information in managerial decision making. Topics include issues in design and evaluation of management information systems, decision support systems, and business expert systems. Prereq: DIS 651.

**DIS 621 BUSINESS EXPERT SYSTEMS.** (3)
Introduction to expert systems and artificial intelligence in the business setting. Discussions include past and current applications of expert systems in business and considerations of future application possibilities. Prereq: DIS 620.

**DIS 622 BUSINESS DATA SYSTEM ANALYSIS AND DESIGN.** (3)
An introduction to the comparative analysis and business use of various data models. Topics include the theory and design of information storage and retrieval procedures in the context of business information needs. Prereq: DIS 620, CS 101 or consent of instructor.

**DIS 623 BUSINESS DECISION SUPPORT SYSTEMS.** (3)
Discussion of business decision support system concepts and the applications of these concepts in business organizations. The theoretical development of the decision support system concept is analyzed through review of important literature in this area. Emphasis is placed on the impact of technological advances which form the basis of decision support system software. Current decision support systems are studied and future likely applications considered. Prereq: DIS 620.

**#DIS 624 MANAGEMENT OF INFORMATION RESOURCES.** (3)
The course is designed to prepare students to understand and analyze major issues related to the management of information resources, evaluate the current state of information resources management within an organization, and participate in the management of such resources. Prereq: DIS 620 or consent of instructor. (Same as MGT 624.)

**DIS 650 DATA ANALYSIS FOR DECISIONS.** (3)
Data Analysis for Decisions is designed to provide four objectives for the MBA student: 1) develop a rigorous foundation for problem solving through structured analysis, 2) provide an introduction to data processing and information environment of managerial decision making, 3) provide the skills necessary to write and run simple programs, 4) provide prospective managers with the skills necessary to use information processing and database management techniques. Prereq: Graduate standing and MA 123 or equivalent.

**DIS 651 QUANTITATIVE ANALYSIS IN BUSINESS DECISION MAKING.** (3)
A study of key problem formulation and solution procedures in business decision making. The topics studied include statistical techniques integrated in decision making under uncertainty, decision trees, queuing problems, and value of information. A major segment of the course is devoted to the study of linear programming problems, sensitivity analysis, assignment problems and transportation problems. Prereq: MBA standing.

**DIS 700 TOPICS IN OPERATIONS MANAGEMENT.** (3)
To review the various topics of operations management and to survey the status of the art research in each topic area. Research methodology and research opportunities in each topic area will be identified. May be repeated to a maximum of nine credits.

**DIS 720 MANAGEMENT INFORMATION SYSTEMS THEORY.** (3)
A theoretical consideration of the role of MIS in managerial decision making. Emphasis is placed on current research in MIS and interrelationships with management science and operations management. Prereq: Consent of instructor.

**DIS 751 MANAGEMENT SCIENCE II.** (3)
Continuation of MGT 651 to include dynamic programming, game theory, Bayesian Decision Theory, and Monte Carlo techniques. Prereq: DIS 651 or equivalent.

**DIS 752 TOPICS IN OPTIMIZATION.** (3)
A study of optimization tools employed in decision making in the business and economic setting. Emphasis on characterization and computation of optima with particular attention to modeling. Topics include linear, nonlinear, dynamic, and integer programming, as well as further study of the method of Lagrange, Kuhn-Tucker theory, optimal control theory and sensitivity analysis. Prereq: Consent of instructor.

**DIS 753 SEMINAR IN MANAGEMENT SCIENCE.** (3-6)
Each semester some topic in management science such as simulation, queuing theory, stochastic processes, numerical methods, and Bayesian Decision Theory will be studied intensively. Prereq: DIS 751, 752.

**DIS 760 RESEARCH METHODS IN DECISION SYSTEMS.** (3)
This course presents the methods appropriate for developing and testing heuristics and experimental data systems. Special emphasis is paid to heuristics for NP hard problems in operations management and to the design and analysis of experimental decision systems using a decision support system laboratory. Prereq: STA 524, DIS 751, or consent of instructor.

**DIS 780 STUDIES IN DECISION SCIENCE AND INFORMATION SYSTEMS.** (3)
This course will analyze the current research topics of interest in the decision sciences. Possible areas of study may include: network management, multiple-criteria decision making; data envelopment analysis, combative decisions, and models for service organizations. May be repeated to a maximum of nine credits. Prereq: DIS 751 or consent of instructor.

**DIS 790 SPECIAL TOPICS IN MANAGEMENT DECISION SYSTEMS (Subtitle required).** (3)
This is a variable topic course enabling focused doctoral student investigation of current research areas. It is anticipated that the course grade will be based on individual student semester research papers in the course topic area. May be repeated to a maximum of 12 credits under different subtitles. Prereq: Consent of instructor.

## DMT Interior Design, Merchandising and Textiles

**†DMT 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT.**

**DMT 114 AN INTRODUCTION TO MERCHANDISING.** (3)
An introduction to merchandising with emphasis on apparel and textiles. A survey of the retail structures which facilitate the merchandising of goods and services.

**DMT 120 TEXTILES FOR CONSUMERS.** (3)
A study of textiles with emphasis on consumer applications. Properties of fibers, yarns, fabric structures, colors, and finishes as related to end use. Survey of legislation and of maintenance requirements. Not open to DMT majors. Credit may not be earned for both DMT 120 and 121.

**DMT 121 TEXTILES.** (4)
The study of the chemical and physical properties of textiles from fiber to finished fabric. Laboratory analysis of the relationship between properties and performance characteristics. Survey of legislation, maintenance requirements, and product specifications. Credit may not be earned for both DMT 120 and 121. Lecture, three hours; laboratory, two hours. Prereq: Departmental majors.

**†DMT 141 HISTORY AND THEORY OF DESIGN I.**

***DMT 142 HISTORY AND THEORY OF INTERIOR DESIGN.** (3)
An historical survey of the development of interior design, architecture and urbanism from the Renaissance to the present, with primary emphasis on the principles of aesthetic philosophy and design theory. Lectures, visuals, readings, discussions, historical analysis, research and field trips.

***DMT 151 CREATIVE DESIGN FOUNDATIONS.** (5)
Exploration of the basic design elements and principles as they relate to two- and three-dimensional design and the development of interior space. Fundamental studio experiences include line analysis and application of line, shape, form, space, texture, and color. Studio, ten hours per week. Prereq: Design major only.

**†DMT 152 VISUAL FUNDAMENTALS.**

**DMT 232 APPAREL PRODUCTION STUDIO.** (3)
Principles of apparel production for men, women and children. Development of basic construction skills. Studio: Six hours. Prereq: DMT 120 or DMT 121.

***DMT 234 HUMAN FACTORS OF DESIGN THEORY.** (3)
A study of the relationship between the built environment and people. Topics include human factor issues that relate to the design of interior spaces such as proxemics, anthropometrics, ergonomics, perception and the application of behavioral research in the design process. Prereq: Three hours in sociology or psychology.

**DMT 237 VISUAL DESIGN IN DRESS.** (3)
An introduction to apparel style terminology. Application of design principles to apparel. Consideration of aesthetic and anthropometric needs of individual body types, color analysis.

***DMT 244 HISTORY AND THEORY OF 20TH CENTURY DESIGN.** (3)
An in-depth analysis of the seminal works in interior design, architecture, and urbanism, with emphasis on the major concepts in design theory and aesthetic philosophy of the 20th century. Lectures, readings, discussions, historical analysis, research, and field trips. Prereq: DMT 141, DMT 142.

**DMT 247 INTERDISCIPLINARY APPROACH TO DRESS.** (3)
A study of the social, cultural, physical, and psychological factors which influence apparel and apparel use in contemporary society. Prereq: Three hours in sociology or anthropology, three hours in psychology.

***DMT 253 INTERIOR DESIGN GRAPHIC COMMUNICATION.** (5)
An introduction to graphic communication theory and the various techniques of drawing employed in the interior design process, including free hand sketching, soft line and hard line schematics and technical drafting conventions. Both formal and informal presentations of drawings are explored. Illustrations are limited to achromatic media. Studio experiences, analyses, discussions, readings and field trips. Prereq: DMT 151.

***DMT 254 COLOR THEORY AND APPLICATION.** (5)
The study of color theory and its application to the field of human environment. Color terminology, introduction to color theories and analysis of color principles in interior environments. An application of color theory to exploration of graphic communication techniques. Lectures, discussion, selected readings, studio appreciation and field trips. Studio, ten hours per week. Prereq: DMT 151 or equivalent and DMT 253.

**†DMT 263 STRUCTURAL SYSTEMS AND MATERIALS.**

**DMT 273 INTERIOR DESIGN AWARENESS.** (3)
A survey of interior design principles, practices, theories, products and trends. Visuals, readings, discussions and exercises. Emphasis on increasing participant's awareness of interior space and the inherent physical and psychological qualities of one's personal environment. Nonmajors only.

**DMT 306 ANALYSIS OF APPAREL QUALITY.** (3)
A study of the factors affecting the quality and cost of apparel in the ready-to-wear industry. An analytical approach to evaluating apparel quality and its relation to cost and consumer satisfaction. Industry field trip. Lecture, two hours; laboratory, two hours per week. Prereq: Majors—DMT 121, 237; Nonmajors—consent of instructor.

***DMT 310 APPAREL INDUSTRY.** (3)
Organization and operation of the industry; influence of designers, manufacturers, retailers, media and consumers. Introduction to fashion theory, industry terminology and sociopsychological concepts. Field trips. Prereq for majors: DMT 114, DMT 237, COM 181.

***DMT 312 APPLIED MERCHANDISING TECHNIQUES.** (3)
Survey of promotional procedures of retail and wholesale organizations including methods of visual merchandising, special event production, and public relations. Field trips. Lecture, two hours; studio, two hours. Prereq: DMT 114, DMT 237, DMT 310.

***DMT 335 INTERIOR BUILDING SYSTEMS I.** (3)
An introduction and overview of structural, electrical, mechanical, thermal and acoustical systems of buildings. Emphasis is on case-study analysis and problem-solving related to the integration of building systems and interior environments. Subject matter includes code analysis and interpretation. Lectures, discussions, readings, research and field trips. Prereq: DMT 254.

**DMT 349 ANALYSIS OF HOUSING FORMS.** (3)
The influence of social, cultural, political, and economic factors on housing, design, and construction. An historical analysis with emphasis on housing design theories in the U.S. during the 20th century. Lectures, discussions, readings, research and field trips.

**DMT 355 INTERIOR DESIGN STUDIO 1.** (5)
Studio problems in interior design related to behavioral responses to static and kinetic spaces in personal and small group situations. Research analyses, discussions, critiques, field trips. Studio, 10 hours per week. Prereq: DMT 244, DMT 254, DMT 264 and approval for continuation from the Sophomore Portfolio Review. Concur: DMT 365.

**DMT 356 INTERIOR DESIGN STUDIO 2.** (5)
Intermediate studio problems in interior design. Emphasis on issues of public and private use of interior spaces such as exhibit/retail spaces, private and open office spaces, financial institution spaces and hospitality spaces. Research, analyses, discussions, critiques, field trips. Studio, 10 hours per week. Prereq: DMT 355, DMT 365; concur: DMT 346.

**DMT 359 SPECIAL TOPIC IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES (Subtitle required).** (1-3)
Exploration of specific topic in the field of interior design, merchandising, and textiles. May be repeated to a maximum of six credits. Prereq: Junior standing or consent of instructor prior to registration.

**DMT 365 INTERIOR DESIGN FINISH MATERIALS.** (3)
An analysis and evaluation of interior design finish materials and production methods. Emphasis on health-safety factors, performance attributes, and user requirements. Lectures, discussions, field trips, research, analyses, calculations. Prereq: DMT 121; Concur: DMT 355.

***DMT 366 INTERIOR BUILDING SYSTEMS II.** (3)
An in-depth study of principles, design requirements and equipment for ambient, task and decorative illumination as utilized in the interior environment. Emphasis is on methods of light generation, control, product analysis, selection, and specification. Lectures, discussion, related readings, calculations and field trips. Prereq: DMT 335.

**†DMT 369 COLOR THEORY.**

**DMT 385 SPECIAL PROBLEMS.** (1-3)
Exploration of specific phases of the field of interior design. May be repeated to a maximum of six credits. Prereq: Junior standing and written consent of instructor prior to registration.

**DMT 395 INDEPENDENT STUDY IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES.** (1-3)
Problems involving independent laboratory, studio, and/or library study conforming to the student's special interest under the direction of an appropriate faculty member having proficiency in the area selected. May be repeated to a maximum of six credits. Prereq Consent of instructor and contractual agreement.

**DMT 414 MERCHANDISING PROCEDURES.** (3)
Application of retail management and merchandising principles to the distribution of fashion goods and services. Prereq: DMT 114, 310, MKT 300, ACC 201, ECO 201, 202.

***DMT 415 APPLIED INDUSTRY PLANNING AND CONTROL.** (3)
Study and application of design, production and retail planning and control procedures which are essential to the industry. Prereq: DMT 114, 310, MKT 300, ACC 201, ECO 201, 202.

**#DMT 432 APPAREL DESIGN.** (3)
This is an applied design course involving the aesthetic, functional and structural aspects of contemporary clothing. Emphasis is given to women's fashion apparel. Factors affecting the evolution of apparel designs and the cyclic aspects of fashion in addition to aesthetics, function, structure and fabrication are considered. Studio work involves study of the design process and development of competency in fashion sketching. Sketching techniques are utilized in both exploring design problems and communication solutions. Analysis of specific human needs to be met by apparel items, problems of fabrication and marketing are basic for effective apparel design problem solution. Prereq: DMT 232 or DMT 306, 237 and 310.

***DMT 450 INTRODUCTION TO RESEARCH IN MERCHANDISING, APPAREL AND TEXTILES.** (3)
Study of research theory and its application to issues in merchandising, apparel and textiles. Prereq: DMT 310, MKT 300 and STA 200.

**DMT 480 MERCHANDISING AND DESIGN STUDY TOUR.** (1-3)
A domestic or foreign study tour to include investigation of interests related to merchandising, apparel, and design. Professional visits are planned according to particular itineraries. Application and payment dates are determined each semester by the instructor. This course may be repeated one time if tour destinations are different. Prereq: Priority is given to majors and upperclassmen. All students are subject to instructor approval.

**#DMT 515 SPECIFICATION AND EVALUATION OF TEXTILES AND APPAREL.** (3)
The course will focus on product development and quality control in textile products (Apparel and Interiors), by developing specifications and evaluating the quality of a textile product. Prereq: DMT 121, DMT 306 or consent of instructor.

**#DMT 520 TEXTILES FOR INTERIORS.** (3)
Selection, cost, expected performance and care of textiles used in residential and commercial interiors. Prereq: DMT 120, 121.

**DMT 522 HISTORY OF TEXTILES.** (3)
Survey of the development of textiles from ancient to modern times. Emphasis on social, economic, technological and political effects on the evolution of textile fibers, fabric structures, color and design. Field trips. Prereq: DMT 120 or 121, plus six hours in European history, Western culture, or art history.

**DMT 525 ECONOMICS OF THE APPAREL AND TEXTILE INDUSTRY.** (3)
A critical review of the apparel and textile industries, including structure, marketing practices, and government policies that affect merchandising and consumption of apparel and textile products. Factors such as the role of labor unions will be examined as well as the effects of international trade on apparel and textile products. Prereq: DMT 120 or 121, ECO 201, 202.

**DMT 532 ADVANCED APPAREL PRODUCTION STUDIO (Subtitle required).** (3)
Analysis and interpretation of apparel design or production methods. Application of techniques for patternmaking, special construction, new equipment, or experimental materials. May be repeated under a different topic to a maximum of nine credits. Studio, six hours per week. Prereq: DMT 232, 306 and consent of instructor.

**DMT 533 HISTORY OF COSTUME.** (3)
Development of costume from ancient to modern times with consideration of historic, social, and economic setting. Field trips. Prereq: Six hours in European history, Western culture, or art history; or consent of instructor.

**DMT 545 CLOTHING FOR SPECIFIC NEEDS.** (3)
A study of the social, psychological, and functional needs of clothing related to specific populations such as the elderly, children, handicapped persons, and occupational groups. Field trips. Prereq: DMT 247.

**DMT 547 SOCIAL AND PSYCHOLOGICAL ASPECTS OF APPAREL.** (3)
An advanced study of the social, psychological factors which influence apparel and apparel use with particular emphasis on research. Prereq: DMT 247 for majors only. Non-majors: three hours in sociology or anthropology and three hours in psychology. (Same as SOC 547.)

**DMT 557 INTERIOR DESIGN STUDIO 3.** (5)
Advanced studio problems in interior design related to commercial spaces: retail, office, financial and hospitality. Studio experiences, analyses, discussions, readings and field trips. Studio, 10 hours per week. Prereq: DMT 356.

**DMT 558 INTERIOR DESIGN STUDIO 4.** (5)
Specialized studio problems in interior design related to institutional spaces such as schools, hospitals and health care facilities. Studio experiences, analyses, discussions, readings and field trips. Studio, 10 hours per week. Prereq: DMT 557.

**#DMT 559 SPECIAL TOPIC IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES. (Subtitle required).** (1-3)
Advanced in-depth study of interior design, merchandising, and textiles. May be repeated to a maximum of six credits. Prereq: Senior standing or consent of instructor prior to registration.

***DMT 568 INTERIOR DESIGN PROFESSIONAL PRACTICE.** (3)
The development of custom design elements and studies within the framework of professional business practices and documentations. Lectures, discussions, guest speakers, field trips and design exercises, including developmental sketches, material selection, shop drawings, and scaled prototypes. Prereq: Senior standing.

**DMT 569 COMPUTER-AIDED DESIGN.** (3)
A study of the methods by which the computer may be used as a tool within the interior design profession. Lectures, laboratory, readings, discussions, functional analysis, research, and field trips. Lecture, two hours; laboratory, two hours per week. Prereq: DMT 356.

**DMT 589 RES/PRES I: INTRODUCTORY CONCEPTS OF RESTORATION AND PRESERVATION.** (3)
A general introduction to the separate and definable qualities of restoration and preservation as employed by the client/designer. A survey of 18th and 19th century architectural characteristics, related government agencies, local and national case studies. Class emphasis on readings, discussions, visuals, site visitations, and guest speakers. Prereq: Senior standing or consent of instructor.

***DMT 590 INTERNSHIP.** (3, 6, or 9)
Supervised experience with a cooperative retail, design, or industrial establishment. Fall and summer semesters. Applications must be submitted spring semester according to a designated schedule established by the department. Prereq: Specific prerequisites determined by type of internship, senior standing, approval of department.

**†DMT 592 SPECIAL PROBLEMS IN APPAREL.**

**DMT 593 PRO/PRAC II: PROFESSIONAL PRACTICE AND FIELD EXPERIENCE.** (3)
An arranged field assignment as a design assistant with an established interior design firm to provide interconnections and insights before the termination of formal education. Emphasis is placed on matching the individual and a studio indicative of the profession. Assignments within a 250 mile radius of the Lexington campus: accommodations arranged per individual. Studio, 40 hours. Prereq: DMT 356.

***DMT 595 INDEPENDENT STUDY IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES.** (1-3)
Problems involving independent laboratory, studio, and/or library study conforming to the student's special interest under the direction of an appropriate faculty member having proficiency in the area selected. May be repeated to a maximum of six credits. Prereq: Senior standing or consent of instructor and contractual agreement.

**†DMT 597 SPECIAL PROBLEMS IN TEXTILES**

**†DMT 599 SPECIAL PROBLEMS IN SHELTER AND INTERIOR DESIGN.**

**DMT 600 RESEARCH METHODOLOGY IN HUMAN ENVIRONMENTAL SCIENCES.** (3)
Students will study scientific techniques and accepted research methodologies in human environmental science research. Emphasis is placed on understanding the research process and developing the skills necessary to evaluate and implement research methods and design procedures. Prereq: Graduate standing. (Same as HES 600.)

**#DMT 622 ADVANCED HISTORY OF TEXTILES.** (3)
An in-depth investigation into the developments of historic textiles from ancient to modern times. An analysis of the social, economic, technological and political effects on the evolution of textile fibers, fabric structures, color and design. A research project will include an analysis of a historic textile or textile application. Prereq: Three credits of History of Textiles or consent of instructor.

**#DMT 633 ADVANCED HISTORY OF COSTUME.** (3)
An in-depth investigation into the history of costume from ancient to modern times with application of history, social and economic factions. A research project will transform the information into an analytical problem of a historic costume. Prereq: Three credits of History of Costume or consent of instructor.

**DMT 641 REGIONAL VARIATIONS IN COLONIAL AMERICAN DESIGN.** (3)
An analysis of regional variations in American furnishings, interior finishes, and architecture from colonization to 1783; consideration will be given to historical, economic, social, political, and religious influences on design. Prereq: DMT 142 or consent of instructor.

**DMT 642 HISTORIC AMERICAN INTERIORS.** (3)
An in-depth analysis of social, economic and technological forces from 1783 to the early twentieth century that influenced decoration in historic American interiors. Emphasis will be placed on interior space planning, surface materials and treatments, furnishings, and the decorative arts with specific application toward preservation and adaptive use projects. Prereq: DMT 589 or equivalent or consent of instructor.

**DMT 646 CURRENT RESEARCH ISSUES IN ENVIRONMENTAL DESIGN.** (3)
A seminar focusing on the current research pertaining to the relationship between the built environment and human behavior, performance or response. Various typical design facilities will be reviewed. Concurrent with HES 600. Prereq: DMT 346 or equivalent.

**DMT 650 SURVEY OF CURRENT THEORIES AND LITERATURE.** (3)
An intensive survey of the theoretical and empirical literature related to the area of interior design, merchandising, apparel and textiles. Emphasis will be placed on research literature and theory building.

**#DMT 655 ISSUES IN CREATIVITY AND DESIGN.** (3)
This course will examine theory and research on creativity. The emphasis will be on social structure, social roles, norms and socialization processes related to creativity such as personality, process, and press. Throughout the course, emphasis will be given to theoretical frameworks and methodological procedures necessary to advance understanding of creativity to help students form a knowledge base for developing an in-depth research topic. Prereq: Graduate standing.

**DMT 659 INTERIOR DESIGN STUDIO 5.** (3)
Advanced studio problems in an aspect of the human environment. Emphasis is placed on design research and programming. Studio experiences, analyses, discussions, readings, and field trips. Studio, six hours per week. Prereq: DMT 558 or consent of instructor.

**DMT 660 INTERIOR DESIGN STUDIO 6.** (3)
Advanced studio problems in an aspect of the human environment. Emphasis is placed on design application. Studio experiences, analysis, discussions, readings, and field trips. Studio, six hours per week. Prereq: DMT 659 or consent of instructor.

**DMT 665 ENVIRONMENTAL ISSUES RELATED TO INTERIOR DESIGN.** (3)
An examination of the philosophical and ethical issues in the practice of interior design. Discussions covered will focus on designer's responsibilities in regard to product specification and interior construction or product technology. Various issues such as preservation of the global environment, socioeconomic concerns, and health, safety and welfare of the users will provide the topics for review. Prereq: DMT 365 or equivalent.

**#DMT 669 ADVANCED COLOR THEORY AND APPLICATION.** (3)
Advanced color theory will examine the physical, psychological, historical and technical perspectives. Application of color theory to textiles and apparel and the built environment. Including color forecasting, technical processes, color specification, and quality control. Prereq: Introduction to Textiles, Introduction to Color Theory.

**#DMT 700 RESEARCH PROBLEMS IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES.** (3)
Independent research for the exploration of a specific problem in interior design, merchandising, and textiles. May be repeated to a maximum of six credits. Prereq: Eighteen credit hours of graduate work.

**†DMT 739 SPECIAL PROBLEMS IN INTERIOR DESIGN.**

**DMT 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**DMT 759 SPECIAL TOPICS IN INTERIOR DESIGN, MERCHANDISING, AND TEXTILES (Subtitle required).** (1-3)
Advanced work on a specific topic in interior design, merchandising, and textiles. May be repeated to a maximum of twelve credits. Prereq: Graduate standing.

**DMT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**DMT 772 SEMINAR IN HUMAN ENVIRONMENT (Subtitle required).** (3)
Current investigation of textiles, apparel, and interior design. May be repeated under a different subtitle to a maximum of six credits.

**†DMT 782 SPECIAL PROBLEMS IN APPAREL.**

**†DMT 785 SPECIAL PROBLEMS IN MERCHANDISING.**

**†DMT 787 SPECIAL PROBLEMS IN TEXTILES.**

## ECO Economics

**ECO 101 CONTEMPORARY ECONOMIC ISSUES.** (3)
A basic course in the analysis of contemporary economic issues with emphasis on current economic topics such as inflation, poverty and affluence, urban congestion, and environmental pollution. (Credit will not be given for this course to students who have received prior credit in ECO 201 and/or 202, and/or ECO 260 and/or 261.)

**ECO 201 PRINCIPLES OF ECONOMICS I.** (3)
The study of the allocation of scarce resources from the viewpoint of individual economic units. Topics include household and firm behavior, competitive pricing of goods and resources, and monopoly power. (Credit will not be given for this course to students who have received credit in ECO 261.)

**ECO 202 PRINCIPLES OF ECONOMICS II.** (3)
A study of how society's needs are satisfied with the limited resources available. Topics include contemporary issues such as inflation, unemployment, economic growth, international dependencies, and how public policy deals with them. (Credit will not be given for this course to students who have received credit in ECO 260.) Prereq: ECO 201 or equivalent.

**ECO 391 ECONOMIC AND BUSINESS STATISTICS.** (3)
A survey of statistical techniques relevant to modern economics and business, with major emphasis on correlation and regression, Bayesian decision theory, index numbers, time series analysis, and forecasting models. Prereq: STA 291 or equivalent.

**ECO 395 INDIVIDUAL WORK IN ECONOMICS.** (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

**# - New course** *** - Course change** **† - Course dropped**

**ECO 400 SEMINAR IN ECONOMICS (Subtitle required).** (3)
Readings, research and discussion in a seminar format to illuminate problems of historical and contemporary interest in areas of special faculty competence. May be repeated to a maximum of nine credits, but may not be repeated under the same subtitle. Will be limited to a maximum of 15 students. Prereq: ECO 201, 202, plus two additional economics courses.

**ECO 450G THE ECONOMICS OF POVERTY AND WELFARE PROGRAMS.** (3)
Examines the economic conditions of the poor in the U.S., theories of poverty, and major redistribution programs in the U.S. The course will study the economic impacts of such programs as Social Security, Medicare, Aid to Families with Dependent Children, Food Stamps, Medicaid, and child care subsidies. Prereq: ECO 202 or consent of instructor.

**ECO 463 ANALYSIS OF BUSINESS CONDITIONS.** (3)
A study of economic factors causing fluctuations in aggregate economic activity and the methods of forecasting business activity. Prereq: ECO 202 or equivalent, and ECO 391.

**ECO 465G COMPARATIVE ECONOMIC SYSTEMS.** (3)
This course deals with the theoretical underpinning of the major economic systems in existence today. The classical model of competitive market capitalism is reviewed first, followed by the Marxian and neo-Marxian (Leninist) critique of capitalism. Next, the contemporary Keynesian and the neo-Keynesian models are analyzed. This course concludes with a review of the Lange model of decentralized (market) socialism. Prereq: ECO 202 or equivalent.

**ECO 467 AMERICAN ECONOMIC HISTORY.** (3)
The development of the American economy will be examined within the general framework of economic theory. Major emphasis will be given to the long-run process of economic growth of the economy from the colonial period to the present. Prereq: ECO 202 or equivalent.

**ECO 471 INTERNATIONAL ECONOMICS.** (3)
The basic exchange model is the most important topic in this course. The exchange model is used to illustrate the gains from trade, the role of opportunity costs, and the properties of relative prices. Production considerations, the concept of comparative advantage, and the resulting factor rewards are introduced. Trade distortions are introduced and studied from the point of view of protectionism and its consequences. Fixed and flexible exchange rates and the concept of balance of payments are also covered. Prereq: ECO 202 or equivalent. (Same as AEC 471.)

**ECO 473G ECONOMIC DEVELOPMENT.** (3)
A comparative study of economic progress in selected countries; growth patterns, theories of development and capital formation, interaction of social and economic change. Prereq: ECO 202 or equivalent.

**ECO 475G THE LATIN AMERICAN ECONOMIES.** (3)
This course will provide a clear understanding of the Latin American economies using economic theory to analyze problems and their potential solutions. Prereq: ECO 202 or equivalent.

**ECO 477 LABOR ECONOMICS.** (3)
Application of economic principles to analyze the operation of labor markets. Topics covered include: theories of labor movements, comparative analysis of unionism in different economies, labor supply, labor demand, human capital, collective bargaining, public policy and the operation of labor markets. In addition, selected topics such as female and minority employment, social security, and industrial conflict will be covered. Prereq: ECO 202 or equivalent.

**ECO 479 PUBLIC ECONOMICS.** (3)
An application of economic analysis to the study of the role of government. Emphasis is on the reasons for and the effects of government intervention in the economy. Topics covered include: market failure, public goods and externalities, welfare policy, voting and public choice, taxation, public debt and cost-benefit analysis. Prereq: ECO 202 or equivalent. (Same as AEC 479.)

**ECO 485G MONETARY ECONOMICS.** (3)
A detailed discussion of the financial sector of basic static macroeconomic models, including the views of both the monetarist and neo-Keynesian schools. Institutional aspects of the financial system are discussed. The course stresses problems of economic stabilization. Prereq: ECO 202 or equivalent.

**ECO 487G INTERMEDIATE MACROECONOMIC THEORY.** (3)
National income concepts, the determination of aggregate income and employment, the theory of money and inflation and problems of economic growth. Prereq: ECO 202 or equivalent.

**ECO 488G INTERMEDIATE MICROECONOMIC THEORY.** (3)
An analysis of the behavior of consumers and firms, price determination, various market structures, and income distribution. Prereq: ECO 202 or equivalent.

**ECO 492G ECONOMIC MODELING AND DATA ANALYSIS.** (3)
To provide the student with a firm foundation in the concepts and procedures for the design, estimation, and analysis of economic models. Emphasizes the structure and utilization of economic models, the availability of economic information, and consideration of computer systems available for data base management. Prereq: ECO 391, 487G or consent of instructor.

**ECO 590 INTRODUCTION TO QUANTITATIVE ECONOMICS I.** (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 488G; MA 113; or consent of instructor. (Same as AEC 590.)

**ECO 610 MANAGERIAL ECONOMICS.** (3)
Analysis of applications of economic theory to management decision making. Such problems as demand and cost determination, pricing, and capital budgeting are treated. Prereq: Graduate standing, MA 123 or its equivalent.

**ECO 611 BUSINESS CONDITIONS ANALYSIS.** (3)
Applied macroeconomics course that covers general economic conditions affecting organizations. Topics include national income accounts, price indices, and the determination of national income through IS-LM and aggregate supply and demand analysis. Additional problems studied include deposit creation, monetary aggregates, business cycles, stabilization policy, expectations, inflation, and unemployment. Prereq: Graduate standing, ECO 610, MGT 650.

**ECO 626 TIME SERIES ANALYSIS.** (3)
Time series and stochastic processes, auto-correlation functions and spectral properties of stationary processes; linear models for stationary processes, moving average, auto-regressive and mixed auto-regressive-moving average processes; linear nonstationary models, minimum mean square error forecasts and their properties; model identification, estimation and diagnostic checking. Prereq: STA 422G or its equivalent. (Same as STA 626.)

**ECO 636 HEALTH ECONOMICS.** (3)
This course applies general theoretical principles of economics to the health care sector. The basic approach is to recognize the importance of scarcity and incentives, allowing for differences peculiar to health. The demand and supply of health and medical care are examined as they involve physicians, nurses and hospitals. The competitiveness of their markets, health insurance and the role of government are explored. Special topics include regulation and planning, benefits-cost analysis, and reform health plans. Prereq: PA 652, HA 601, HA 621, MHA or MPA program status. (Same as HA/PA 636.)

**ECO 652 PUBLIC POLICY ECONOMICS.** (3)
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA or MHA program status; prereq or concur: completion of MPA or MHA computer skills program requirement. (Same as HA/PA 652.)

**ECO 660 ADVANCED MICROECONOMIC THEORY.** (3)
An intensive course covering microeconomic theory and its various methodological and analytical techniques. Prereq: ECO 488G or consent of instructor.

**ECO 661 MACROECONOMIC THEORY.** (3)
National income and employment theory, theories of inflation, and problems of economic growth. Not open to those with credit in ECO 761. Prereq: ECO 487G or consent of instructor.

**ECO 665 HISTORY OF ECONOMIC THOUGHT I.** (3)
The background and development of English political economy up to 1848.

**ECO 666 HISTORY OF ECONOMIC THOUGHT II.** (3)
Main lines of controversy, reconstruction and development in economics since 1848 with an emphasis on the bibliography.

**ECO 670 ECONOMICS OF INTERNATIONAL FINANCIAL INSTITUTIONS.** (3)
An in-depth study of financial markets, commercial banking, and business finance in an international setting. Prereq: ECO 471G, 485G.

**ECO 671 INTERNATIONAL ECONOMICS SEMINAR I.** (3)
History and analysis of theories of international trade; theories of international equilibrium and mechanisms of equilibrium adjustments; theory of economic integration. Prereq: ECO 471G.

**ECO 672 WORLD TRADE AND COMMERCIAL POLICY.** (3)
An analysis of trade patterns and the implication of government policy on trade, in the light of both economic theory and empirical findings. Prereq: Successful completion of an upper division undergraduate or graduate level economics course.

**ECO 674 AGRICULTURE AND ECONOMIC DEVELOPMENT.** (3)
Analytical consideration of the role of agriculture in economic development in relation to overall development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 473G or consent of instructor. (Same as AEC 626.)

**ECO 676 LABOR ECONOMICS I.** (3)
The theory and estimation of the demand for and the supply of labor are introduced. Topics include demographic changes, minimum wages, retirement, and secular trends in labor force participation. The concept of human capital is examined, including applications to income distribution. Theory and evidence on the structure of wages in the U.S. is considered. Topics include compensating wages and race and gender differences. Prereq: ECO 487G and ECO 488G or consent of instructor.

**ECO 679 PUBLIC ECONOMICS.** (3)
An advanced study of both how government activities influence allocation, relative prices and welfare and what is the proper role of the public sector in resource allocation. Relevant topics include: public goods, externalities, tax incidence, optimal taxation, benefit-cost analysis, public pricing, fiscal federalism, state-municipal finance and public choice. Prereq: ECO 487G, 488G or consent of instructor.

**ECO 680 BENEFIT-COST ANALYSIS.** (3)
Principles, practices and applications of applied welfare analysis are the content of this course. The basic theory of benefit-cost analysis is presented and the relevance of implementation analysis in policy analysis is established. Prereq: PA 652. (Same as PA 680.)

**ECO 683 URBAN AND REGIONAL ECONOMICS.** (3)
An intensive study of the theory, evidence and policy concerning urban areas and regions. Topics typically covered include: nature of regions and urban areas, size and distribution of cities, location decisions, housing, transportation, migration and regional growth. Prereq: ECO 487G, 488G, 492G or consent of instructor.

**ECO 684 ENVIRONMENTAL ECONOMICS, REGULATION AND POLICY.** (3)
This course takes a balanced practitioner approach to the problems of the environment and environmental regulation. Efficiency aspects will be developed carefully, so as to provide a background for an extensive coverage of various available alternative policies. Prereq: PA 652 and MPA or economics program status or consent of instructor. (Same as PA 727.)

**ECO 686 MONETARY ECONOMICS: THEORY.** (3)
Demand and supply of money and other assets. The financial sector in macro-static and dynamic models of the economy. Prereq: ECO 760, 761 or consent of instructor.

**ECO 687 MONETARY ECONOMICS: POLICY.** (3)
Theory of public policy making. Central bank policy instruments and the effectiveness of monetary policy. Debt management and the term structure of interest rates. Econometric studies of the financial sector. Reforming financial institutions. Prereq: ECO 686 or consent of instructor.

**ECO 688 OPTIMIZATION AND ECONOMIC THEORY I.** (3)
A study of the applications of optimization techniques such as search theory, the calculus of variations, optimal control theory, and dynamic programming through economics. Applied topics may include the economics of information, economics of uncertainty, and modern theories of consumer and firm behavior. Prereq: ECO 762.

**ECO 691 INTRODUCTION TO ECONOMETRICS I.** (3)
The first course in the introduction to econometrics. A comprehensive survey of the general linear regression, autocorrelation, errors in variables and distributed lag models. Prereq: STA 424G, STA 525 or consent of instructor.

**ECO 692 INTRODUCTION TO ECONOMETRICS II.** (3)
The second course in the introduction to econometrics. A comprehensive survey of identification, estimation and hypothesis testing in the context of simultaneous equations model. Prereq: ECO 691 or consent of instructor.

**ECO 700 TEACHING METHODS IN BUSINESS.** (0)
A three part course that examines what constitutes good teaching and explores effective techniques for college instruction. Seminars emphasize practical information for both the principal activities and the details of teaching. Departmental discussions allow students to discuss issues that arise in their teaching practice. Reviews of classroom performance provide professional feedback in order to enhance on-the-job learning. Seminar, two hours per week. Prereq: Approval of Director of Graduate Studies. (Same as BA 700.)

**ECO 741 THEORY OF THE FIRM AND MARKET STRUCTURE.** (3)
A study of firms and markets covering such topics as organizational structure and objectives of firms; product selection, advertising and quality; price discrimination; vertical control; entry, accommodation and exit; cost structure and market organization, market structure and performance; and public policy. Prereq: ECO 660.

**ECO 742 INDUSTRIAL ORGANIZATION.** (3)
A comprehensive survey of the literature in industrial organizations including static theories of oligopoly, dynamic theories of oligopoly, information about strategic behavior, research and development, patents, and adoption of new technology.

**ECO 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ECO 752 THE ECONOMICS OF POLICY ANALYSIS.** (3)
This course examines economic approaches to policy analysis. Included is an analysis of the major concepts of economic analysis and their application to a number of policy problems. Prereq: PA 652 or equivalent, and Ph.D. program status or consent of instructor. (Same as PA 752.)

**ECO 760 NEOCLASSICAL MICROECONOMIC THEORY.** (3)
The Neoclassical theory of consumer behavior, production, market equilibrium and imperfect competition. Prereq: ECO 448G, 590 or consent of instructor.

**ECO 761 ADVANCED MACROECONOMIC THEORY.** (3)
The rigorous development of a general equilibrium macroeconomic model in the context of the recent literature. Prereq: ECO 487G, 661 or consent of instructor.

**ECO 762 GENERAL EQUILIBRIUM ANALYSIS AND WELFARE ECONOMICS.** (3)
Existence, stability, efficiency and Pareto satisfactoriness of competitive equilibrium. Recent developments in general equilibrium and welfare theory. Prereq: ECO 488G, 590 or consent of instructor.

**ECO 763 SEMINAR IN MACROECONOMIC THEORY.** (3)
Recent developments and major issues in contemporary macroeconomic theory. Prereq: ECO 761.

**ECO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ECO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ECO 771 INTERNATIONAL ECONOMICS SEMINAR II.** (3)
Trade and economic development; determination of international payments equilibrium; econometric studies in world trade; computation of terms of trade; new developments in trade theory. Prereq: ECO 471G.

**ECO 776 LABOR ECONOMICS II.** (3)
Dynamic and cyclical labor demand are examined theoretically and empirically. Models of unemployment are considered, including search theory and the implicit contract model. Aspects of labor unionism are examined including changes in union membership, strikes, and union wages and employment. The incentive effects of compensation are discussed, including sorting models and the principal-agent problem. Prereq: ECO 660 or consent of instructor.

**ECO 788 OPTIMIZATION AND ECONOMIC THEORY II.** (3)
A continuation of ECO 688. The specific areas of study may differ from one semester to the next, but will be selected from such subjects as general equilibrium theory, social choice, game theory, economics of uncertainty, and the economics of information. Prereq: ECO 688.

**ECO 796 SEMINAR.** (1-6)
An extended original investigation of some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. May be repeated to a maximum of six credits.

**ECO 797 RESEARCH PROBLEMS IN ECONOMICS.** (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.

## EDA Education—Administration and Supervision

**EDA 401 THE PROFESSIONAL TEACHER: LEGAL PERSPECTIVES.** (1)
Study of legal concerns of public school teachers. Emphasizes legal rights and responsibilities of teachers and pupils. Lecture, two hours per week for eight weeks. Prereq: Admission to the Teacher Education Program.

**EDA 600 ORGANIZATION AND ADMINISTRATION OF AMERICAN EDUCATION.** (3)
An analysis of the administration of local, state and federal education agencies and their relationships. A study of the administrative tasks in these agencies.

**EDA 601 ADMINISTRATION OF EDUCATIONAL ORGANIZATIONS.** (3)
A study of the historical development of educational administration, administrative processes, the application of theory and values in decision making and an introduction to modern management methods applied to education.

**EDA 603 CONSTITUTIONAL AND LEGAL BASIS OF PUBLIC SCHOOL ADMINISTRATION.** (3)
A study of court decisions to discover the legal principles involved in practical problems of school administration. Prereq: Admission to program in administration and supervision.

**EDA 608 INTERNSHIP IN EDUCATIONAL ADMINISTRATION AND SUPERVISION.** (3)
Field experiences are provided for prospective administrators under the cooperative supervision of University personnel and principals, supervisors, and superintendents in Kentucky public school systems. May be repeated for a maximum of six credits. Prereq: Admission to program in administration and supervision.

**EDA 629 THE PRINCIPAL.** (3)
An analysis of the building unit as a sub-system within a larger complex organization. Special emphasis on the changes in the role of the principal as a result of changes in society and in the schools. Prereq: Admission to department program or consent of instructor.

**EDA 632 ADMINISTRATION OF EDUCATIONAL REFORM.** (3)
Study of administrative responsibilities associated with the development and implementation of educational reform and improvement projects and programs. Focus on knowledge and skills needed to work effectively with others in promoting successful program implementation. Prereq: Admission to Department program or consent of instructor.

**EDA 633 ADMINISTRATION AND SUPERVISION OF INSTRUCTIONAL PROGRAMS.** (3)
A study of the role of organizational leadership in the development of instructional goals, instructional programs, evaluation procedures and procedures for educational changes.

**EDA 634 ADMINISTRATION OF EDUCATIONAL PERSONNEL.** (3)
Consideration of the motivation and management of educational personnel with special emphasis on the professional in complex organizations. Attention is given to the theory and practice of collective bargaining in education.

**EDA 635 BUSINESS ADMINISTRATION AND FINANCE OF PUBLIC EDUCATION.** (3)
A course for prospective superintendents. Emphasizes school support, including state, local, and federal revenues; budgetary policy; procedures for purchasing, accounting, and reporting costs; management of funds, property, equipment, and supplies; payroll procedures, records and reports.

**EDA 639 THE SUPERVISOR.** (3)
A study of the role of the supervisor of instruction as part of administrative leadership in improving instructional programs with special emphasis on in-service education of staff. Prereq: Admission to program or consent of instructor.

**EDA 641 ORGANIZATION AND ADMINISTRATION OF SCHOOL COMMUNITY RELATIONS.** (3)
Examination of issues and responsibilities attendant to the organization and administration of a school community relations program at the school district and the school building level. Focus on administrative tasks, duties, and responsibilities and research supporting school community interactions. Prereq: Consent of the instructor.

**EDA 642 MICROCOMPUTER APPLICATIONS IN ADMINISTRATION.** (3)
This course provides prospective and practicing administrators with the opportunity to gain practical and theoretical knowledge in the subject matter related to microcomputer applications in the school environment.

**EDA 651 FOUNDATIONS OF INQUIRY.** (3)
Introductory study of assumptions and procedures of systematic inquiry used to investigate administrative, leadership and supervisory phenomena in education. Issues regarding both quantitative and qualitative models of inquiry are included. Prereq: ADSU major or consent of instructor.

**EDA 701 LEADERSHIP IN EDUCATIONAL ORGANIZATIONS I.** (3)
A study of leadership with particular emphasis on understanding the nature, defining characteristics, responsibilities, contextual determinants, and importance of leadership within educational organizations. Prereq: Admission to Department program or consent of instructor.

**EDA 702 LEADERSHIP IN EDUCATIONAL ORGANIZATIONS II.** (3)
A study of leadership with particular emphasis on examining the lives and actions of individual leaders for the purpose of understanding the nature, requirements and importance of leadership within educational organizations. Leadership theory is used to inform the discussion about each leader identified and studied. Prereq: Admission to the Department program or consent of instructor.

**EDA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EDA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EDA 771 SEMINAR IN ADMINISTRATION.** (1-3)
A variable topic seminar on selected problems in school administration. Activities designed to improve skill in planning, decision making, organizing, communicating, evaluating, negotiating, and resolving conflict will be provided as appropriate. Educational innovations and processes of implementing change may be analyzed. May be repeated to a maximum of six credits. Prereq: Admission to program or consent of instructor.

**EDA 785 INDEPENDENT WORK IN SCHOOL ADMINISTRATION.** (3)
Includes research on a practical problem in school administration. Open only to students with at least one semester of graduate work in education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**EDA 792 RESEARCH IN EDUCATIONAL ADMINISTRATION AND SUPERVISION.** (3)
Critical examination of representative research studies in administration and related fields. Emphasis upon the students' defining and delimiting an appropriate problem in educational administration and supervision, generating a design appropriate to the problem and selecting appropriate techniques of analysis. Prereq: Admission to program.

## EDC Education—Curriculum and Instruction

**EDC 317 INTRODUCTION TO INSTRUCTIONAL MEDIA.** (1)
An introductory instructional media experience including basic production and utilization techniques for media materials and operation of commonly used educational media equipment. Topics include graphic preservation, transparency production, audio materials, motion pictures, 35mm photographic techniques, and an introduction to videotape television. Prereq: Admission to a Teacher Education Program.

**EDC 322 ELEMENTARY PRACTICUM.** (1-3)
Planned and supervised practicum in teaching elementary science, reading, social studies, and mathematics. Observation, selecting objectives and materials, questioning strategies, learning centers, instructional units, and assessment techniques will be emphasized. May be repeated to a maximum of three credits. Lecture, one hour; laboratory, six to twelve hours per week. Prereq: Admission to Early Elementary TEP. Concur: EDC 323, EDC 326, EDC 328, EDC 337, and EDC 329.

**EDC 323 CLASSROOM MANAGEMENT AND DISCIPLINE.** (3)
This course is designed to strengthen students' understanding of the relationship between classroom environment and classroom behavior. Activities and readings will focus on effective decision-making in classroom management and on developing alternatives for preventing and dealing with management and discipline problems. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP. Concur: EDC 322.

**EDC 325 TEACHING IN THE ELEMENTARY SCHOOL.** (3)
A course designed to develop understandings relative to program planning, daily schedule, record keeping, evaluation, reporting to parents, professional organizations, and teacher ethics. The unit approach as a method of organizing learning experiences in the elementary school is introduced.

**EDC 326 TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL.** (3)
A study of methods and materials for teaching social studies at the elementary level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for elementary social studies. Consideration will be given to addressing the individual needs of a diverse student population. Special emphasis is placed on instruction in grades K-4. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP and 15 hours of social sciences. Coreq: EDC 322.

**EDC 328 TEACHING SCIENCE IN THE ELEMENTARY SCHOOL.** (3)
A critical analysis of a variety of objectives, instructional materials and evaluation techniques for teaching elementary school science, with a special emphasis on grades K-4. Consideration will be given to addressing the individual needs of a diverse student population. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP and 12 hours of science. Coreq: EDC 322.

**EDC 329 TEACHING READING AND LANGUAGE ARTS.** (3)
Development of competencies for the teaching of reading and other language arts to groups. Course will also provide an overview of the nature of reading and language arts development from grade K-8. Twenty hours of laboratory work in the schools are required. Prereq: Admission to Early Elementary Education TEP or Middle School TEP.

**EDC 330 DESIGNING A READING AND LANGUAGE ARTS PROGRAM FOR THE MIDDLE SCHOOL.** (3)
A study of materials and techniques useful in the diagnostic teaching of reading and other language arts with students in grades 5-8. The course will emphasize materials, techniques, and procedures which diagnose individual strengths and weaknesses, and prescriptive instruction based upon the diagnosis. Lecture, three hours; laboratory, one hour. Prereq: EDC 329 or consent of instructor; admission to the Teacher Education Program.

**EDC 334 ORAL AND WRITTEN LANGUAGE DEVELOPMENT IN THE ELEMENTARY SCHOOL.** (3)
A study of language differences, methods for teaching children with language differences, ways to integrate oral language instruction with the total curriculum, ways to enhance students' expressive writing abilities, and ways to teach grammar, spelling, and handwriting through functional and creative writing activities. Prereq: EDC 329 and admission to the elementary teacher education program.

**EDC 337 TEACHING MATHEMATICS IN ELEMENTARY SCHOOLS. (3)**
Fundamental concepts of numbers, their relationships, geometry and other mathematics topics for children of grades K-4. Emphasis on use of concrete materials and the development of language, appropriate learning experiences, computational skills, and problem-solving abilities. Prereq: Admission to TEP and MA 202. Coreq: EDC 322.

**EDC 339 DESIGNING A READING AND LANGUAGE ARTS PROGRAM FOR THE ELEMENTARY SCHOOL. (3)**
A study of materials and procedures for developing reading and language arts skills with elementary students, with an emphasis on grades K-4. Course will emphasize how to diagnose individual student skill strengths and weaknesses and build a prescriptive program based upon the diagnosis. Prereq: EDC 329; admission to the TEP or permission of instructor. Coreq: EDC 322.

**EDC 341 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION. (3)**
This course is designed to acquaint teachers of early adolescents with the rationale behind the middle school concept, and, in particular, the techniques of teaching as an individual and as a member of an interdisciplinary team. The development of generic teaching skills such as planning, implementing, managing, and evaluating learning programs is emphasized. Prereq: Admission to Teacher Education Program.

**EDC 342 STUDENT TEACHING IN ART. (3-12)**
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. The student works with children on all grade levels under the guidance of the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 343 THE EARLY ADOLESCENT LEARNER: PRACTICUM. (3)**
This course is designed to extend and apply knowledge of the social, emotional, intellectual, and physical characteristics of the early adolescent learner through observation and interaction in school settings. The course format will include a weekly seminar and a supervised field placement in a middle school setting. Lecture, one hour; laboratory, six hours per week. Prereq: Admission to Teacher Education Program.

**EDC 344 PRINCIPLES AND TECHNIQUES OF TEACHING IN THE SECONDARY SCHOOL. (3)**
This course will include a survey of secondary school curriculum, development of teaching objectives, instruction in the development of the technical skills of teaching. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 345 TEACHING MATHEMATICS IN THE MIDDLE SCHOOL. (3)**
A study of theoretical models and methodological strategies for teaching arithmetic, informal geometry, and introductory algebra at the middle school level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies and evaluation techniques. Consideration will be given to addressing the individual needs of a diverse student population. Prereq: Admission to Teacher Education Program; 18 hours of undergraduate mathematics. Concur: EDC 330 and EDC 343.

**EDC 346 TEACHING SOCIAL STUDIES IN THE MIDDLE SCHOOL. (3)**
A study of theoretical models and methodological strategies for teaching social studies at the middle school level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for middle school social studies. Consideration will be given to addressing the individual needs of a diverse student population. Prereq: Admission to TEP; completion of 24 hours in social studies. Concur: EDC 330 and EDC 343.

**EDC 347 TEACHING ENGLISH AND COMMUNICATION IN THE MIDDLE SCHOOL. (3)**
This course will explore various approaches to teaching English and communication in the middle school with special emphasis on the nature of language development. Prereq: Admission to the TEP and 24 hours in English/communication specialization. Concur: EDC 330 and 343.

**EDC 348 TEACHING SCIENCE IN THE MIDDLE SCHOOL. (3)**
A study of theoretical models and methodological strategies for teaching science at the middle school level. This course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for middle school science. Special needs of individuals in a diverse middle school population are emphasized. Prereq: Admission to TEP and 24 hours of science. Concur: EDC 330 and 343.

**EDC 349 STUDENT TEACHING IN THE MIDDLE SCHOOL. (3-12)**
This course is designed to give the student experience teaching within a middle school setting. Weekly seminars will be held to discuss issues relevant to the student teacher's experience. Offered on a pass-fail basis only. Lecture, 1 hour; laboratory, 30 hours per week. Prereq: Must meet published college requirements for student teaching.

**EDC 353 STUDENT TEACHING IN ENGLISH. (3-12)**
Observation and practice in teaching high school English. Included are objectives and content of English courses in high school, planning and methods of teaching, testing, textbook analysis, audio-visual material and equipment, and safety education. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 354 STUDENT TEACHING IN LANGUAGES. (3-12)**
Aims and objectives, courses of study, materials, methods, and testing in French, Spanish, and Latin. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 355 STUDENT TEACHING IN THE SCIENCES. (3-12)**
Aims and objectives, courses of study, methods, tests, equipment, general science, biology, physics, and chemistry. The course includes observation and practice, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 356 STUDENT TEACHING IN MATHEMATICS. (3-12)**
Aims and objectives, course of study, materials, methods, and testing in algebra, geometry, and trigonometry. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 357 STUDENT TEACHING IN THE SOCIAL STUDIES. (3-12)**
Includes a study of the development and present status of social studies programs, classroom methods and activities, teaching materials, testing and evaluation, professional aids to teachers, safety education, and observation and participation in actual classroom experiences. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 358 STUDENT TEACHING IN PSYCHOLOGY. (3-12)**
Culminating in intensive half to full semester field experience in teaching psychology. Forty-hour laboratory per week. May be repeated to a maximum of 12 credits. Offered on a pass/fail basis only. Prereq: Completion of the academic and professional sequence required in social studies education prior to student teaching.

***EDC 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1-3)**
Supervised experiences in schools, other education agencies, and the community. Required of all students receiving a bachelors degree in secondary education. Includes field trips, work in schools, and involvement in community projects.

**EDC 377 STUDENT TEACHING IN MUSIC. (3-12)**
A course planned for teachers who expect to become either instructors or supervisors of music in the public schools. Observation, teaching, work on research problems, and conferences with the supervising teacher included. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION. (6-12)**
Course designed to give students experience with supervised teaching at two levels: pre-primary and primary. Emphasis will be placed on observations and teaching (individual, small, and large group methods). One afternoon per week will be devoted to a discussion and analysis of problems in student teaching. Discussion, two hours; laboratory, 22 hours per week. Offered on a pass-fail basis only. Prereq: Completion of professional sequence and formal admission to student teaching; admission to the Teacher Education Program or permission of instructor. (Same as FAM 411.)

**#EDC 421 SURVEY OF SECONDARY MATHEMATICS CURRICULUM. (3)**
This course will examine the content of the mathematics curriculum of the secondary school and issues related to that curriculum. Students are expected to demonstrate competency in this content.

**EDC 433 STUDENT TEACHING IN THE ELEMENTARY SCHOOL. (3-12)**
A course designed to give the student experience with and practice in the program of an elementary school. Actual work with children in all learning situations is the basic part of the course. A required weekly seminar will include sessions on: beginning teacher internship, school law and students' rights, administrative organization, and professional development. Offered on a pass/fail basis only. Prereq: Must meet the published college requirements for student teaching.

**EDC 449 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION. (3)**
The relationship between the organization of modern society and its communication media: Special emphasis is given to the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: COM/SOC 249 or its equivalent. (Same as COM/SOC 449.)

**EDC 454 CULTURE, EDUCATION AND TEACHING ABROAD. (2-4)**
Introduction to the social, political, economic, and educational institutions of another country in preparation for student teaching in that country. The process and problems of adjusting to life in another culture will be included as well as instruction in the language of the host country as needed. Faculty from other departments in the University will be used as well as informants from the country involved. Lecture, three hours per week; laboratory, two hours per week for language practice. Prereq: Admission to a teacher education program. (Same as EPE 454.)

**EDC 500 CLINICAL AND LABORATORY TEACHING. (3)**
The course focuses on generic teaching skills that can be used effectively in a range of school and clinical settings. Included are preparation of instructional objectives, teaching methodologies, materials selection and utilization, and assessment. Lecture, two hours; laboratory, two hours per week. Prereq: 12 hours of social and/or behavioral science and consent of instructor; NUR 814.

**EDC 501 TEACHING INTERNSHIP. (1-12)**
Supervised practice teaching under competent leadership. Observation, instruction, independent study which parallels field experience, and conferences with supervising instructor included. This course is designed primarily for students in allied health professions, education, library and information science, home economics, and social work. May be repeated to a maximum of 12 hours. Prereq: EDC 500 or consent of instructor.

**EDC 513 TEACHING ENGLISH AS A SECOND LANGUAGE. (3)**
The course will examine the current theories and methods of teaching English as a second language. The course will include (1) language learning theory as it relates to other disciplines; (2) methods and techniques of contrastive analysis. Prereq: One course in linguistics or consent of instructor. (Same as ENG 513.)

**EDC 514 TESL MATERIALS AND METHODS. (3)**
An extension of ENG/EDC 513, this course will include examination and evaluation of published materials designed for teaching English to speakers of other languages. Students will create individualized teaching materials and gain practical experience in applying the methods and using their own materials. Prereq: ENG/EDC 513 or consent of instructor. (Same as ENG 514.)

**EDC 521 MATERIALS AND METHODS IN TEACHING MATHEMATICS IN THE SECONDARY SCHOOL. (3)**
A course emphasizing the methods and materials used in teaching secondary school mathematics, including simulated teaching of selected topics from arithmetic, algebra, geometry and upper level school mathematics. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 522 MATERIALS AND METHODS IN TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL. (3)**
A course for prospective secondary school social studies teachers in the utilization of materials, resources, equipment and techniques appropriate for modern teaching strategies. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 524 MATERIALS AND METHODS FOR TEACHING SCIENCE IN THE SECONDARY SCHOOL. (3)**
A course designed to provide practical experience in curriculum materials and methods for the development of teaching models in secondary school science. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 525 MATERIALS AND METHODS OF TEACHING ENGLISH IN THE SECONDARY SCHOOL. (3)**
A course designed to develop frames of reference from which to make appropriate selection of materials and methods for the teaching of secondary school English. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 533 TEACHING READING IN THE SECONDARY SCHOOL. (3)**
A study of current methods and materials useful in teaching reading in secondary schools with particular emphasis on the improvement of reading in the content areas. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDC 534 READING AND STUDY SKILLS IN ENGLISH. (3)**
An introductory course for teachers of English. The emphasis is on developing competencies necessary for teaching reading and study strategies in the English and humanities curriculum, especially at the junior and senior high school levels. Lecture, three hours; laboratory, one hour. Prereq: Junior standing, admission to the TEP in English education, or consent of instructor.

**#EDC 543 VIDEO TECHNOLOGY IN INSTRUCTION. (3)**
A variety of video applications for educational use are investigated. Classroom exercises and projects develop basic video skills and production experience. Topics include instructional video research studies, video equipment, terminology, and systems; video and computer interface configurations and applications, and aesthetics and visual interpretation.

***EDC 544 USE AND INTEGRATION OF EDUCATIONAL MEDIA. (3)**
Students use a range of traditional, interactive, and emerging technological interventions in analog and digital formats. Students gain skill in the operation, production, and integration of basic media such as video, graphics, videodisk, and CD-ROM in a variety of instructional settings (training, exploratory learning, on-line databases, etc.). Students demonstrate skills via the composition and production of several media documents using available tools and resources.

**†EDC 545 PREPARATION OF INSTRUCTIONAL MATERIALS.**

***EDC 547 INSTRUCTIONAL COMPUTING I. (3)**
Students use instructional computing applications and understand the roles and uses of computers in instruction. Students select and use instructional computing hardware and software appropriate to instructional goals and settings. Students use electronic networks for instructional purposes. Students demonstrate skill using basic productivity software through structured assignments and collaborative projects.

**#EDC 548 INSTRUCTIONAL COMPUTING II. (3)**
Students develop skill in advanced aspects of the operation and use of the range of instructional technologies from desktop to distributed computing environments. Students use operating systems, learn network administration, do technology planning, and work with basic authoring tools. Skill is demonstrated through a series of projects including development of a technology plan for a specified work setting and authorship of a prototype program. Prereq: EDC 547 or consent of instructor.

**EDC 550 TEACHING THE CULTURALLY DIFFERENT. (3)**
A critical study of the concept of disadvantagement, relevant teaching practices, institutional programs, and curricula.

**EDC 565 MODERN EDUCATIONAL PROBLEMS. (GENERAL CURRICULUM). (3)**

**EDC 575, 576 MODERN EDUCATIONAL PROBLEMS. (UNCLASSIFIED). (3 ea.)**

**EDC 580 INTRODUCTION TO GIFTED EDUCATION. (3)**
This course reviews the historical development of and the theoretical and empirical support for differentiated educational programs for gifted and talented children. Specific issues addressed include defining and identifying giftedness, teacher competencies and training, providing differentiated curricula and program evaluation. (Same as EDP 580.)

**†EDC 601 PRACTICUM IN SECONDARY EDUCATION.**

**EDC 602 CURRICULA AND PROGRAMMING FOR THE GIFTED. (3)**
Students in this course will examine and evaluate curricular models appropriate of gifted students, and will consider methods for adapting existing curricula to meet the needs of gifted students. The design, implementation and evaluation of program delivery models will be discussed. Prereq: EDC/EDP 580 and teacher certification, or consent of instructor.

**†EDC 606 INSTRUCTIONAL TELEVISION IN THE CLASSROOM.**

***EDC 607 INSTRUCTIONAL DESIGN I. (3)**
Introduction to the instructional design process from needs assessment and goal definition through evaluation. Each student will design prototype instructional materials based on an instructional design model and/or procedures. The course will also introduce students to the field of instructional design and technology.

***EDC 608 INSTRUCTIONAL DESIGN II. (3)**
Critical analysis of instructional design models and their theoretical foundations including the impact of various models and perspectives on the practice and the products of instructional design. Prereq: EDC 607 or consent of instructor.

**#EDC 609 INTERACTIVE MULTIMEDIA RESEARCH AND DESIGN. (3)**
Students integrate theory and practice in the design of interactive multimedia for instruction. Students use a wide range of interactive technology and critique existing interactive programs. Research findings in the interdisciplinary field of human-computer interaction and interactive learning concepts are applied to interface design problems. Students design, develop and evaluate a prototype interactive program. Prereq: EDC 544, EDC 547 or consent of instructor.

**EDC 610 DISCIPLINE AND CLASSROOM MANAGEMENT. (3)**
The course is designed to examine the causes of and solutions to disruptive and noncompliant behavior and classroom management problems that are within the control of the classroom teacher. The course content is designed around two approaches: (1) identifying prevalent problems and exploring specific solutions to them; (2) presenting selected strategies and applying them to a variety of problems. In both cases, alternatives are considered in the light of relevant theory, law, research and experience. Prereq: Teacher certification and EDU 203.

**#EDC 611 AUTHORING APPLICATIONS FOR TECHNOLOGY-BASED INSTRUCTION. (3)**
Focuses on individual and collaborative authoring applications for technology based instructional materials. Topics include linear and non-linear information structures, instructional message design, compositional issues related to audience focus, information density, language control, and organization, and prototype production with industry standard authoring software. Prereq: EDC 547 and EDC 607 or consent of instructor.

**#EDC 612 INSTRUCTIONAL DESIGN AND TECHNOLOGY FOUNDATIONS. (3)**
Provides an in-depth survey of the field of instructional design and technology. Topics covered include the history of instructional design and technology, critical issues, current trends and future prospects for the field, instructional development, research, certification, and professional development.

**EDC 615 ADVANCED INSTRUCTIONAL APPLICATIONS FOR THE EARLY ADOLESCENT LEARNER. (3)**
This course for middle school teachers examines the complex nature of the 10 to 14 year old student. Analysis of recent research-based effective instructional strategies to meet the needs, interests, and characteristics of these students will be included. Prereq: Teacher Certification or consent of instructor.

**EDC 616 THE MIDDLE SCHOOL. (3)**
The purpose of this course is to provide middle school teachers with an in-depth analysis of the characteristics of effective middle school facilities. An examination of current curricular models, issues, trends, and exemplary middle schools will comprise the primary focus of this course. Prereq: EDC 615 or consent of instructor.

**EDC 618 ADVANCED STUDY IN THE TEACHING OF READING. (3)**
An advanced course for classroom teachers which focuses on selection and implementation of reading assessment and instructional procedures. The theoretical bases of the reading process and the knowledge of research in reading will be related to the design of classroom instruction. This course is to become an option in Area 7 of both the Elementary and Secondary Standard Certification programs. Prereq: EDC 330 or 339 or 533 or equivalent.

**EDC 619 ASSESSMENT OF READING GROWTH AND DEVELOPMENT. (3)**
Clinical techniques for the diagnosis of reading disabilities. A course designed to develop both theoretical understandings and operational skills in clinical diagnosis of reading problems. Classroom application of the techniques is discussed. Lecture, two hours; laboratory, two hours. Prereq: EDC 330 or 533, or 534 or consent of instructor.

**EDC 620 DESIGN AND IMPLEMENTATION OF READING INSTRUCTION. (3)**
Clinical techniques used in the remediation of reading problems. A course designed to develop individualized procedures related to diagnosis. Classroom application of the instructional procedures is discussed. Lecture, two hours; laboratory, two hours. Prereq: EDC 619, or consent of instructor.

**EDC 621 LINGUISTIC AND COGNITIVE FOUNDATIONS OF READING IN EARLY CHILDHOOD. (3)**
A study of reading as a language-based process with an emphasis upon developing observational skills to assess the child's growth in oracy and literacy skills and upon designing a language learning environment to meet these needs. Prereq: EDC 339 or permission of instructor.

**EDC 631 MATHEMATICS PEDAGOGY IN THE SECONDARY SCHOOL. (0-3)**
Through campus and school-based experiences, students will learn how to engage young people in learning mathematics and how to make decisions about planning instruction and develop assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 632 SOCIAL STUDIES PEDAGOGY IN THE SECONDARY SCHOOL. (0-3)**
Through campus and school-based experiences, students will learn how to engage young people in learning social studies and how to make decisions about planning instruction and develop assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 633 BUSINESS PEDAGOGY IN THE SECONDARY SCHOOL. (0-3)**
Through campus and school-based experiences, students will learn how to engage young people in learning business and how to make decisions about planning instruction and develop assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 634 SCIENCE PEDAGOGY IN THE SECONDARY SCHOOL. (0-3)**
Through campus and school-based experiences, students will learn how to engage young people in learning science and how to make decisions about planning instruction and develop assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 635 ENGLISH PEDAGOGY IN THE SECONDARY SCHOOL. (0-3)**
Through campus and school-based experiences, students will learn how to engage young people in learning English and how to make decisions about planning instruction and develop assessment based on a sound knowledge base for applying content, materials, and methods (including educational technology) appropriate for high school students. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 641 RESEARCH AND THEORY IN TEACHING READING IN THE ELEMENTARY SCHOOL. (3)**
A systematic study of the research and theory and their application to the teaching of reading in the elementary school. Attention will be given to new developments in the field. Prereq: EDC 330 or consent of instructor.

**EDC 642 RESEARCH AND THEORY IN TEACHING LANGUAGE ARTS. (3)**
A systematic study of research and theory in oral and written language acquisition and the implications of this knowledge for facilitating the development of listening, speaking and writing in classroom settings. The interrelationships among all of the language arts (reading, writing, listening and speaking) will be stressed. Prereq: EDC 330, or 553, or 534, or consent of instructor.

**EDC 670 ADVANCED STUDY IN THE TEACHING OF ELEMENTARY SCHOOL MATHEMATICS. (3)**
New developments in modern elementary mathematics for teachers in the elementary schools will be reviewed. Special emphasis will be given to a study of new teaching methods, application of published research, techniques and trends in mathematics in the elementary school. Prereq: Graduate standing.

**EDC 676 PRACTICUM IN GIFTED EDUCATION. (3)**
Supervised experience in the instruction of gifted children. Requires placement in an approved program designed for serving gifted children plus participation in a weekly supervisory seminar. Lecture, two hours; laboratory, nine hours per week. Prereq: EDP 580, EDC 602, EDP 612 or consent of instructor. (Same as EDP 676.)

***EDC 710 ADVANCED TOPICS IN INSTRUCTIONAL DESIGN. (3)**
An identification and analysis of current theories and programs of research in instructional systems design. Students will develop the skills necessary to conduct and write a scholarly literature review and identify potential areas and questions needing further study. Prereq: EDC 608, EDP 610, EDC 612, or consent of instructor.

**EDC 712 THE ELEMENTARY SCHOOL. (3)**
Recent research and modern trends in teaching the skills and content subjects in the elementary school. Planned for supervisors, superintendents, principals, and teachers for better understanding of a modern elementary school.

**EDC 714 THE SECONDARY SCHOOL. (3)**
A course designed to acquaint the secondary teacher and the administrator with the nature and function of the secondary school.

**EDC 724 ORGANIZATION AND SUPERVISION OF STUDENT TEACHING. (3)**
A course designed for teachers preparing to become supervising teachers. The basic principles apply both to elementary and secondary education. Includes a presentation of the experiences deemed important in developing students into effective teachers.

**EDC 730 PROBLEMS OF THE SCHOOL CURRICULUM. (3)**
Problems in the field of the school curriculum and in the preparation of instructional materials. Students enrolling in this course are required to leave on file with the College of Education a complete report of each problem studied. May be repeated once for a maximum of six credits.

**EDC 732 PRINCIPLES OF CURRICULUM CONSTRUCTION. (3)**
Study of basic principles of curriculum development. Relationship of social and psychological factors to curriculum change. Survey of current approaches to curriculum organization. Considerations of means of curriculum development in the school systems.

**EDC 740 PRACTICUM IN TEACHING READING AND RELATED LANGUAGE ARTS. (3)**
Supervised practicum in analyzing problems in reading and related language arts and providing remedial work. Requires six hours per week in practicum with individual children or groups, plus two hours per week in seminar. May be repeated to a maximum of six credits. Prereq: EDC 619, 620.

**EDC 746 SUBJECT AREA INSTRUCTION IN THE SECONDARY SCHOOL. (0-9)**
Students will teach in their subject areas in the schools full-time, meet regularly to discuss teaching effectiveness and strategies for improvement and develop their professional portfolios. May be repeated to a maximum of nine credits. Lecture, 3-9 hours; laboratory, 6-18 hours per week. Prereq: The appropriate methods course in the subject area (EDC 631, 632, 634 or 635). Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDC 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EDC 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**#EDC 750 INTERNSHIP IN INSTRUCTIONAL SYSTEMS DESIGN. (3)**
Students will apply their knowledge of instructional systems design in a real-life setting. The work setting will be selected based on the professional goals of each student and student work will be supervised and reviewed by the internship coordinator. May be repeated to a maximum of nine credits. Prereq: Consent of program coordinator.

**#EDC 755 INSTRUCTIONAL SYSTEMS DESIGN RESEARCH COLLOQUIUM. (1)**
Students and faculty will discuss current research and related issues in instructional systems design. May be repeated to a maximum of two credits. Prereq or concur: EDC 547 and EDC 608.

**EDC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**EDC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**EDC 777 SEMINAR IN CURRICULUM AND INSTRUCTION (Subtitle required). (1-3)**
A critical analysis of recently developed materials and techniques in curriculum and instruction for precollege education. Includes analysis of evaluative research related to new materials and techniques. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**EDC 781 INDEPENDENT STUDY IN CURRICULUM AND INSTRUCTION. (1-3)**
An independent study course for graduate students who have completed at least half of the program course requirements in clinical and college teaching, curriculum and instruction, early childhood education, elementary education, reading or secondary education. May be repeated to a maximum of nine credits. Prereq: Consent of the Director of Graduate Studies.

**EDC 791 RESEARCH PROBLEMS IN CURRICULUM AND INSTRUCTION. (1-3)**
A research problems course for graduate students who have completed at least half of the program course requirements in clinical and college teaching, curriculum and instruction, early childhood education, elementary education, reading or secondary education. May be repeated to a maximum of nine credits. Prereq: Consent of the Director of Graduate Studies.

## EDP Educational and Counseling Psychology

**EDP 202 HUMAN DEVELOPMENT AND LEARNING. (3)**
Theories and concepts of human development, learning, and motivation are presented and applied to interpreting and explaining human behavior and interaction in relation to teaching across the developmental span from early childhood to adulthood. A field experience in a school or other educational agency is a required and basic part of the course. Prereq: PSY 100.

**EDP 203 TEACHING EXCEPTIONAL LEARNERS IN REGULAR CLASSROOMS. (3)**
An introduction to the characteristics and instructional needs of exceptional learners is presented with an overview of principles, procedures, methods, and materials for adapting educational programs to accommodate the integration of exceptional children in regular classrooms, when appropriate. A field experience in a school or other educational agency is a required and basic part of the course. Lecture, three hours per week; laboratory, two hours per week for a maximum of six weeks. Prereq: Successful completion of EDP 202 with an earned grade of C or higher.

**EDP 518 MENTAL HYGIENE. (3)**
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Not open to students who have had CH 520. Prereq: PSY 100 or 215, or EDP 202.

**EDP 522 EDUCATIONAL TESTS AND MEASUREMENTS. (3)**
Problems of measurement in the school program with special emphasis on standardized tests. General principles of test construction, teacher-made tests, examinations, criteria of evaluation and marking systems.

**EDP 548 EDUCATIONAL PSYCHOLOGY. (3)**
An introduction to the application of principles of psychology to classroom learning and teaching problems.

**EDP 557 EDUCATIONAL STATISTICS. (3)**
A study of the applications of statistical and graphical methods to educational data. Basic descriptive statistics, correlation, the normal distribution, and hypothesis testing will be covered. Prereq: MA 109 or equivalent; undergraduate or graduate status in the College of Education; or consent of instructor.

**EDP 570 INTRODUCTION TO PSYCHOLOGICAL SERVICES IN SCHOOLS. (3)**
A review of the historical development and models of organization and administration in the field of school psychology and the relationship between school psychology and other educational and psychological specialties. Prereq: Admission to School Psychology Program or consent of instructor.

**EDP 580 INTRODUCTION TO GIFTED EDUCATION. (3)**
This course reviews the historical development of and the theoretical and empirical support for differentiated educational programs for gifted and talented children. Specific issues addressed include defining and identifying giftedness, teacher competencies and training, providing differentiated curricula and program evaluation. (Same as EDC 580.)

**EDP 600 LIFE SPAN HUMAN DEVELOPMENT AND BEHAVIOR. (3)**
A survey of human development across the life span of the individual from conception to death. Content includes changes in motor skills, biological growth and decline, learning behavior, language, social, emotional, moral, and intellectual development as well as the roles of the family, the school, peers, and work in relation to individual development. Critical evaluation of current theories which describe human development. (Same as FAM 654.)

**EDP 601 HUMAN SOCIAL DEVELOPMENT. (3)**
Survey of current research and theory regarding motor skills, social development, imitation, dependency, aggression, affiliation, moral development and peer group behavior. Prereq: EDP 600 or consent of instructor.

**EDP 603 HUMAN COGNITIVE DEVELOPMENT. (3)**
Theory and research concerning the development of attitudes, motives, self-concept and other cognitive processes are presented and the educational implications explored. Prereq: EDP 548 or EDP 610 or EDP 600.

**EDP 604 LIFESPAN GENDER DEVELOPMENT. (3)**
An in-depth examination of theory, research, and personal attitudes concerning gender development over the lifespan. Interaction of gender with effective personal functioning in family, educational, and work-related settings. Prereq: EDP 600 and 601 or equivalent.

**EDP 605 INTRODUCTION TO COUNSELING: TECHNIQUES I. (3)**
A survey of counseling psychology, philosophy, procedures and practices. Consideration of the roles of the counselor in relation to counseling services in the community and educational settings. In-depth training in initial counseling skills, interviewing (listening) and relationship building skills. Prereq: Acceptance to the graduate program in counseling psychology with the following major codes: RECO, EGCO, CPEC, ECPY, ECPC, CNPS, or consent of instructor via permit.

***EDP 606 PROFESSIONAL ISSUES IN COUNSELING PSYCHOLOGY. (3)**
A first course in the graduate curriculum in counseling psychology. Addresses professional identity, A.P.A. ethical guidelines, legal aspects of psychological practice including licensing and confidentiality, historical perspectives, training issues, and current topics of professional concern in counseling psychology. Prereq: Enrollment in a post-master's program in counseling psychology.

**EDP 610 THEORIES OF LEARNING IN EDUCATION. (3)**
Consideration of the theoretical origins of learning within the context of education. Topics include major theories of learning, physiological bases for learning, relationships between learning theory and instruction, and major applications of learning theories in educational settings.

**EDP 611 HUMAN COGNITIVE LEARNING. (3)**
Major cognitive learning theories which explain thinking and problem-solving behavior are compared and contrasted, especially as they are applied to arrange for effective instruction. Prereq: EDP 610 or EDP 548 or PSY 507 or equivalent.

**EDP 612 DEVELOPMENT OF CREATIVITY AND CRITICAL THINKING. (3)**
Reviews the theoretical and empirical literature related to developing creativity and critical thinking and describes practical and effective methods of measuring and developing these cognitive abilities in gifted and nongifted students. Prereq: EDP 580 or consent of instructor.

**EDP 613 SOCIAL PSYCHOLOGICAL ISSUES IN EDUCATION. (3)**
This course is designed to meet the needs of graduate students in the College of Education, particularly those in educational, school, and counseling psychology, for a course in theory and principles of social psychology. While the course will survey basic concerns in social psychology, the material will be geared toward application in schools and other educational settings. For example, while the theories of attitude formation will be surveyed, principle focus will be on the measurement of attitudes in education. Further, in the study of group dynamics, applications to group learning, administrative leadership, and organizational theory will be stressed. In addition to the theories and principles of social psychology, research paradigms, social change, social influence, system consultation, and community issues as they relate to social psychological considerations will be covered. Prereq: One course in psychology or consent of instructor.

**EDP 615 PROSEMINAR IN HISTORY AND SYSTEMS OF PSYCHOLOGY. (3)**
A study of the philosophical precursors and scientific traditions of psychology. The schools of 19th and 20th century psychology are surveyed as are the major theoretical positions and content areas of contemporary psychology. Prereq: Graduate standing in department of Psychology or department of Educational and Counseling Psychology. (Same as PSY 620.)

**EDP 620 TOPICS AND METHODS OF EVALUATION. (3)**
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EPE 620/SOC 622.)

**EDP 621 ADVANCED TOPICS AND METHODS OF EVALUATION. (3)**
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE/ANT 620; and consent of instructor. (Same as ANT/EPE 621.)

**EDP 630 PRINCIPLES OF PSYCHOLOGICAL ASSESSMENT. (3)**
An in-depth study of psychological assessment including observational methods, interviewing, behavioral analysis, and diagnosis of group psychometric testing as a means of arriving at a comprehensive individual analysis and the formation of a treatment plan. Specific emphasis will be placed on practice with administering, scoring, the use of computer integration techniques and report writing. The focus will be directed towards personality and vocational assessment. Lecture, two hours; laboratory, two hours per week. Prereq: EDP 522 or equivalent; enrollment in a professional program in Educational and Counseling Psychology or consent of instructor.

**EDP 640 INDIVIDUAL ASSESSMENT OF COGNITIVE FUNCTIONING. (3)**
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, two hours; laboratory, two hours. Prereq: EDP 630 or equivalent and enrollment in a professional program in Educational and Counseling Psychology and consent of instructor.

**EDP 642 INDIVIDUAL ASSESSMENT OF PERSONALITY FUNCTIONING. (3)**
An in-depth study of the nature and measurement of human emotion, temperament and personality. Laboratory and field experience in the administration, scoring, and interpretation of tests related to personality functioning and underlying dynamics of personality. Lecture, two hours; laboratory, two hours per week. Prereq: Successful completion of EDP 640 with a grade of B or better or consent of instructor.

**EDP 649 GROUP COUNSELING. (3)**
An overview of the theoretical bases and practical procedures used in the organization, and effective use of group counseling in the facilitation of psychological and educational goals. Prereq: EDP 652 and EDP 661 or consent of instructor.

**EDP 650 DIAGNOSIS AND PSYCHOPATHOLOGY IN COUNSELING PSYCHOLOGY. (3)**
An integrative seminar in diagnosis and application of theories, techniques and assessment tools in Counseling Psychology. Special consideration of methods of classification of psychological states and characteristics including DSM-III temperament, analysis, and other research methods of integrating assessment and treatment alternatives. Prereq: EDP 630, 640 and admission to one of the doctoral programs in Educational and Counseling Psychology and consent of instructor.

**EDP 652 THEORIES OF COUNSELING. (3)**
A survey of theories and methods in facilitating personality growth, character maturation, problem solving, decision making, crisis resolutions, and behavior change, through individual and group counseling. Prereq: Acceptance to a graduate program in EDP with the following major codes: EGCO, CPEC, ECPY, ECPC, ESPP, ECPS, ECPE, EEPS, CNPS, EDPS, or consent of instructor via permit.

**EDP 656 METHODOLOGY OF EDUCATIONAL RESEARCH. (3)**
An introduction to research methods applicable to education; the scientific method, research designs, measurement techniques, statistical analysis, and writing the research report.

**EDP 658 PROBLEMS IN EDUCATIONAL PSYCHOLOGY.** (1-3)
Special topics in psychological theories and research applicable to educational practices. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**EDP 659 ADVANCED EDUCATIONAL MEASUREMENT.** (3)
Theory and application in educational measurement with emphasis on the appropriate selection, administration, and interpretation of standardized tests used in educational assessment. Prereq: EDP 522 or equivalent.

**EDP 660 RESEARCH DESIGN AND ANALYSIS IN EDUCATION.** (3)
A study of the research methodologies applicable in the several aspects of education. Emphasis is on the design of research and analysis of accumulated data. Prereq: EDP 557.

**EDP 661 TECHNIQUES OF COUNSELING II.** (3)
Practice in interviewing, simulated problems, observational techniques, role of the counselor. Study of films, tapes and transcripts of leading practitioners of several schools of counseling. Supervised practice with selected clients. Lecture, two hours; laboratory, two hours. Prereq: EDP 605 and consent of instructor.

**EDP 664 PRE-MASTERS PRACTICUM IN COUNSELING PSYCHOLOGY.** (1-6)
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. May be repeated to a maximum of twelve credits. Lecture, three hours; laboratory, eight hours per three credit hours. Prereq: EDP 652 and EDP 661 and Master's candidacy in counseling and approval of departmental counseling committee.

**EDP 665 POST-MASTERS PRACTICUM IN COUNSELING PSYCHOLOGY.** (1-6)
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. Prereq: A Master's degree in Counseling Psychology or equivalent, approval of departmental counseling committee and EDP 661.

**EDP 666 PSYCHOLOGY OF CAREER COUNSELING.** (3)
Tests of vocational interests and aptitudes. Collection and retrieval of occupational and educational information. Facilitation of sound decision-making. Prereq: EDP 652.

**EDP 669 DIAGNOSTIC CLASSIFICATION IN SCHOOL PSYCHOLOGY.** (3)
Review of theory and research related to individual differences in physical, intellectual, social, and emotional development of preschool and school-aged children and adolescents. Compares psychological and educational approaches to diagnostic classification of such differences. Prereq: PSY 533 or consent of instructor.

**EDP 670 PSYCHOEDUCATIONAL STRATEGIES OF INTERVENTION.** (3)
A general review of and development of basic competence in the major intervention strategies applicable to the amelioration of children's common learning and adjustment difficulties in the school setting. Prereq: EDP 640, EDP 669 and Admission to School Psychology Program.

**EDP 671 SEMINAR IN PSYCHOEDUCATIONAL CONSULTATION IN SCHOOLS.** (3)
A study of the rationale and techniques used in consultation with teachers, parents, administrators and other school personnel for the purpose of both preventing and alleviating the learning and adjustment difficulties of individual or groups of school-aged children. Prereq: Admission to School Psychology Program, advanced standing in a professional educational program or permission of the instructor.

***EDP 675 PRACTICUM IN SCHOOL PSYCHOLOGY.** (1-6)
Supervised experience in the application of psychoeducational, diagnostic assessment, intervention, and consultation services in a clinic, school, or community setting. Requires three hours of on-site activities per credit hour and weekly supervision meetings. May be repeated to a maximum of 18 credits. Prereq: Admission to the School Psychology Program and consent of instructor.

**EDP 676 PRACTICUM IN GIFTED EDUCATION.** (3)
Supervised experience in the instruction of gifted children. Requires placement in an approved program designed for serving gifted children plus participation in a weekly supervisory seminar. Lecture, two hours; laboratory, nine hours per week. Prereq: EDP 580, EDC 602, EDP 612 or consent of instructor. (Same as EDC 676.)

**EDP 680 PARENT AND CHILD COUNSELING.** (3)
Theories, methods, and techniques of counseling psychology as applied to planned interventions with parents and their children. Contemporary approaches to family and child dysfunctioning are studied within a framework of human development; applied practice utilizing simulated problems. Prereq: EDP 600, 652, and 661, or consent of instructor.

**EDP 683 TOPICS IN COUNSELING PSYCHOLOGY.** (1-3)
Counseling for special problems with special methods. Topics may vary from semester to semester. Seminar, one-three hours per week. May be repeated to a maximum of 12 credits. Prereq or coreq: EDP 652 and consent of instructor.

**EDP 685 ISSUES AND TECHNIQUES IN THE COUNSELING OF WOMEN.** (3)
The course is designed to improve students' knowledge of the special counseling needs of women and to facilitate students' development of highly skilled techniques for counseling with women. Skill and knowledge areas include such topics as rape, spouse abuse, mastectomy, career, assertiveness, single parenting, and sex discrimination. Prereq: EDP 661, 652, 604 and consent of instructor.

**EDP 686 THEORY AND METHODS IN MARRIAGE AND FAMILY THERAPY.** (3)
A survey of theories and methods used in marriage and family therapy. Designed to provide students with a knowledge of the theoretical bases for marriage and family therapy, including an introduction to procedures used to assess, diagnose and treat marriage and family dysfunctions. Prereq: FAM 657 or consent of instructor. (Same as FAM 686.)

**EDP 701 COGNITIVE-BEHAVIORAL COUNSELING.** (3)
Theory and applications of cognitive-behavioral techniques. Assessment, intervention, and evaluation procedures are applied to problems treated by cognitive-behavioral counseling. Prereq: EDP 652 and 661 or consent of instructor.

**EDP 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES.** (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision-making. (Same as EDV 702.)

**EDP 703 SEMINAR IN CLINICAL SUPERVISION.** (1-3)
An advanced seminar covering theories, issues, methods and techniques in supervision of counseling and psychotherapy. Seminar topics will vary depending on the interests of the professor and students. May be repeated to a maximum of six credits. Prereq: EDP 652, EDP 661, and EDP 665 or equivalent.

**EDP 707 MULTIVARIATE ANALYSIS IN EDUCATIONAL RESEARCH.** (3)
A study of several techniques for the analysis of educational outcomes utilizing multiple variables. Prereq: EDP 660 or equivalent.

***EDP 708 INTERNSHIP IN EDUCATIONAL AND COUNSELING PSYCHOLOGY.** (0-9)
Full-time practice in an operational setting such as a school or government agency, with on-site supervision provided by the host agency and with academic supervision provided by a University faculty member. Practicum: full-time field experience. May be repeated to a maximum of 12 credits. Prereq: Completion of a minimum of one year of graduate study in the department and consent of instructor.

**EDP 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EDP 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EDP 762 ORGANIZATION AND OPERATION OF PUPIL SERVICES.** (3)
A study of the professional roles among counselors, social and health workers, and school psychologists. Content includes supervision of these roles, community participation, in-service education, and evaluation of integrated pupil services. Prereq: Provisional credentials in a pupil services field or consent of instructor.

**EDP 765 INDEPENDENT STUDY IN COUNSELING PSYCHOLOGY.** (1-4)
Independent study course for advanced graduate students who desire to investigate special problems in counseling psychology. May be repeated to a maximum of six credits. Prereq: One year of graduate work in counseling psychology and consent of instructor.

**EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EDP 776 SEMINAR IN SCHOOL PSYCHOLOGY (Subtitle required).** (3)
Topical consideration of philosophical, technical, professional and theoretical positions in school psychology theory and practice. May be repeated to a maximum of nine credits under different subtitles. Prereq: Graduate standing in School Psychology or consent of instructor.

**EDP 777 SEMINAR IN COUNSELING PSYCHOLOGY.** (1-3)
Topical consideration of philosophical, technical and theoretical positions in counseling theory and practice. May be repeated to a maximum of six credits. Prereq: Doctoral standing, EDP 665, or consent of instructor.

**EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY (Subtitle required).** (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. May be repeated to a maximum of nine credits under different subtitles. Prereq: Doctoral standing in the College of Education or consent of instructor.

**EDP 782 INDEPENDENT STUDY IN EDUCATIONAL PSYCHOLOGY.** (1-3)
Independent study course for advanced graduate students who desire to investigate special problems and conduct research in educational psychology. May be repeated to a maximum of 12 credits. Prereq: One year of graduate work in educational psychology and consent of instructor.

## EDS Education—Special

**EDS 357 INITIAL PRACTICUM IN SPECIAL EDUCATION.** (1)
An introductory supervised field experience for special education majors. Students will participate in two special education programs as teacher aides. Placements will include public schools and other agencies serving children with disabilities. May be repeated to a maximum of three credits. Lecture, one hour; field experience, three hours per week. Prereq or concurrent: EDS 375.

**EDS 375 INTRODUCTION TO EDUCATION OF EXCEPTIONAL CHILDREN.** (3)
An introduction to the various contemporary areas of special education. Topics include special education diagnostic categories, programming, service delivery models, career education, child advocacy and litigation affecting public education for students with disabilities.

**EDS 395 INDEPENDENT STUDY IN SPECIAL EDUCATION.** (1-6)
An independent study course for undergraduate students with an interest in a specific problem in special education. Offered by appointment.

**EDS 459 STUDENT TEACHING IN SPECIAL EDUCATION.** (3-12)
Supervised student teaching experience utilizing the special techniques used in working with individuals with exceptional educational problems such as speech handicaps, physical handicaps, visual impairments, hearing disabilities, neurological impairments (learning disabilities), mental retardation, and the gifted. To be offered only on a pass-fail basis. Prereq: Must complete the published College requirements for admission to student teaching; admission to the Teacher Education Program or permission of instructor.

**EDS 510 EARLY CHILDHOOD SPECIAL EDUCATION.** (3)
An overview of the field of early childhood special education including discussions of historical and empirical support for providing early intervention services, screening, assessment, instructional programming, integration of children with and without disabilities, family involvement, and service delivery models. Emphasis is placed on assessing and promoting attainment of cognitive, language, social, self-help, and motor skills. Prereq: EDS 375 or EDP 203 or consent of instructor.

**EDS 511 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE SEVERELY HANDICAPPED.** (3)
An introduction to communication development and intervention for language disordered individuals whose language age is at or below four years, including cognitive, social, auditory, visual, and motor components. Topics include prerequisites for language, normal communication development, evaluation of language functioning, and approaches to altering communication behavior. Prereq: CD 277 or EDS 375 or consent of instructor. (Same as CD 511).

**EDS 512 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE MILDLY HANDICAPPED.** (3)
An introduction to the characteristics of receptive and expressive language disorders in language-disordered children whose language age is four years or higher, including auditory, visual, cognitive, and motor components. Topics include language development, language disorders, language evaluation, and techniques for receptive and expressive language stimulation. Prereq: CD 277 or EDS 375 or permission of instructor. (Same as CD 512).

**EDS 513 LEGAL AND PARENTAL ISSUES IN SPECIAL EDUCATION.** (3)
A review of pertinent legislation concerning human and constitutional rights and parental issues related to persons with disabilities. Teachers' specific responsibilities and liabilities are described and related to current requirements for development of appropriate educational programs. Emphasis is given to how, through active parent participation, teachers can facilitate each student's developmental progress. The resources and methods for dealing with the problems confronted by parents of exceptional children are considered. Prereq: EDS 375 or consent of instructor.

**EDS 516 PRINCIPLES OF BEHAVIOR MANAGEMENT AND INSTRUCTION FOR EXCEPTIONAL LEARNERS. (3)**
An overview of educational settings in which special educators work and of basic principles of applied behavior analysis and modification which employ social learning theory and operant conditioning models. Emphasis is placed on designing individualized learning environments, selecting and implementing behavior management strategies, writing behavioral objectives, and performing task analyses. Prereq: EDS 375 or permission of the instructor.

**EDS 517 PROSTHETICS FOR CHILDREN WITH DISABILITIES. (3)**
A general introduction to the theory, need, and use of prosthetic devices in the classroom. Review of physical disabilities and basic operation, maintenance, and trouble shooting techniques will be presented. Service personnel typically associated with the fitting, training in the use of and repair of prosthetic devices will be discussed. Students will be required to simulate a disability and use a prosthetic device. Prereq: EDS 375 or permission of instructor.

**EDS 520 SURVEY OF SEVERE DEVELOPMENTAL DISABILITIES. (3)**
Introductory course surveying the medical and behavioral characteristics of children and youth with severe disabilities. Other topics will include the historical, social, political, economic, and legal issues pertaining to the education and treatment of persons with severe disabilities. Prereq: Consent of instructor and course in applied behavior analysis.

**EDS 527 CHARACTERISTICS OF INDIVIDUALS WITH ORTHOPEDIC AND NEUROLOGICAL DISABILITIES. (3)**
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple disabilities.

**EDS 528 EDUCATIONAL ASSESSMENT FOR STUDENTS WITH MILD DISABILITIES. (3)**
Procedures for administering formal and informal tests to determine specific educationally relevant strengths and deficits of children with learning and behavior disorders. The characteristics of children with learning and behavior disorders are surveyed, as they relate to special education programming. Lecture, three hours; field experience, two hours. Prereq: EDS 375 and admission to the Teacher Education Program; or consent of instructor.

**EDS 529 EDUCATIONAL PROGRAMMING FOR STUDENTS WITH MILD DISABILITIES. (3)**
Design, implementation, and evaluation of individualized programs based on the educationally relevant characteristics of children with mild disabilities. Includes educational assessment and programming in reading, math, and language. Prereq: EDC 329, admission to the Teacher Education Program, EDS 513, 516, and 528; or consent of instructor.

**EDS 530 CHARACTERISTICS OF MENTAL RETARDATION. (3)**
Special education issues with individuals exhibiting moderate to severe intellectual and developmental disabilities. A critical examination of contemporary research with regard to the educational, behavioral, developmental issues of individuals exhibiting moderate to severe intellectual and developmental disabilities. Issues and research describing the full educational inclusion and community integration of persons with moderate to severe intellectual and developmental disabilities will be addressed. Lecture, three hours; field experience, three hours.

**EDS 548 ADAPTIVE BEHAVIOR ASSESSMENT AND CURRICULUM DESIGN FOR MODERATE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES. (3)**
Educational and adaptive behavior assessment and curriculum prescription for individuals exhibiting moderate intellectual and development disabilities. The course participant will acquire skills in the use of current formal and informal educational and adaptive behavior assessment procedures for use in prescribing curriculum, instructional, behavioral intervention with individuals exhibiting moderate intellectual and developmental disabilities. Specific attention will be focused on procedures for using assessment data and curriculum prescription that enhances the full inclusion of school age individuals with disabilities with their non-disabled peers. Lecture, three hours; field experience, four to six hours per week. Prereq: EDS 516, 530; or consent of instructor.

**EDS 549 ADVANCED PRACTICUM METHODS IN MODERATE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES. (4)**
The course participant will serve as a teacher aide in a classroom or other service delivery setting under the supervision of a person certified in either the Trainable Mentally Handicapped (TMH) or Severely/Profoundly Handicapped (S/PH) areas. Course requirements include application of direct observation, formal and informal assessment of pupil performance, clinical writing and instructional and behavioral intervention in both individualized and small group settings. Practicum settings used by course participants will model best practices with regard to instruction, behavior management, and the full inclusion of persons with moderate intellectual and developmental disabilities with their non-disabled peers. Lecture, two hours; field experience, six to eight hours per week. Prereq: Admission to the Teacher Education Program, EDS 516, 520, 548; or consent of instructor.

**EDS 550 STUDENT TEACHING FOR MODERATE/ SEVERE INTELLECTUAL AND DEVELOPMENTAL DISABILITIES. (6-12)**
Student teaching in the low-incidence intellectual and developmental disabilities classroom. Supervised student teaching in a classroom for students classified for educational purposes in Kentucky as "Trainable Mentally Handicapped" or "Severe/Profoundly Handicapped." To be offered on a letter grade basis only. Prereq: Must complete the published College requirements for admission to student teaching, including admission to the Teacher Education Program; or consent of instructor.

**EDS 558 PROBLEMS IN SPECIAL EDUCATION (Variable topic). (1-9)**
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. May be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

**EDS 570 BEHAVIOR DISORDERS OF EXCEPTIONAL CHILDREN. (3)**
The behavior problems of exceptional children and youth are considered in the context of normal child development. A survey of the major categories of behavior disorders includes identification, description, and etiology, with material drawn from clinical, theoretical, and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Prereq: EDS 375 or equivalent.

**EDS 589 FIELD EXPERIENCES WITH CHILDREN WITH MILD DISABILITIES. (3)**
Supervised prestudent teaching experiences with children having learning and behavior disorders, including observational and practical experience with public school children in at least two different special education sites. Approximately two hours lecture-discussion and two three-hour observation and/or practica per week. Prereq: EDS 513, 516, 528, admission to the Teacher Education Program; or consent of instructor. Must take concurrently with EDS 529.

**EDS 600 SURVEY OF SPECIAL EDUCATION. (3)**
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

**EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)**
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with individuals and groups of children. Lecture, two hours; laboratory, two hours. Prereq: EDS 516 or equivalent.

**EDS 602 ADMINISTRATION AND SUPERVISION IN SPECIAL EDUCATION. (3)**
The organization, management and supervision of programs for exceptional children at the local, state and national levels. Roles and functions of the special education administrator are considered. Experiences drawn from special residential, private and public day schools are studied. Prereq: Certification in special education; six hours of course work in educational administration and supervision.

**EDS 603 BEHAVIORAL CONSULTATION IN THE SCHOOLS. (3)**
Principles and techniques of behavioral consulting with classroom teachers and other school personnel, with particular focus on supporting handicapped children in mainstream education programs. The consultant's role in providing indirect service to children, through inservice teacher training and consultation, is emphasized. Lecture, two hours; laboratory, two hours. Prereq: EDS 601, or equivalent; EDP 671 (may be taken concurrently); or permission of instructor.

**EDS 610 EDUCATIONAL EVALUATION OF EXCEPTIONAL CHILDREN. (3)**
An intensive study of, and laboratory experience in, the assessment of educational problems of exceptional children. Special emphasis is given to the relationship of physical, intellectual, emotional and social handicaps to performance in the individual or group setting. Lecture, two hours; laboratory, two hours. Prereq: EDP 522 and consent of instructor, EDS 528 or equivalent.

**EDS 611 EDUCATIONAL REMEDIATION OF LEARNING DISABILITIES OF EXCEPTIONAL CHILDREN. (3)**
The study of, and laboratory experience in, the remediation of educational problems of exceptional children. Attention is given to the amelioration of learning disabilities in individual cases. Lecture, two hours; laboratory, two hours. Prereq: EDS 529 or equivalent and EDS 610 or consent of instructor.

**EDS 612 ADVANCED PRACTICUM IN SPECIAL EDUCATION. (3-6)**
Intensive clinical experience with exceptional children in day and residential schools, hospitals and private agencies. Students engage in prescriptive teaching with handicapped children in individualized, small group and special class settings. Laboratory, 6-12 hours per week. Prereq: Graduate standing; major in special education.

**EDS 620 INSTRUCTIONAL PROGRAMMING IN EARLY CHILDHOOD SPECIAL EDUCATION. (3)**
An in-depth study of the rationale and research history of the early education of exceptional children. A wide variety of assessment tools commonly used in the education of young handicapped children will be presented, used and discussed. Individualized program planning based on test results and techniques for working with groups of exceptional children will be presented, implemented and discussed. Prereq: EDS 375 or 600 and EDS 510 or equivalent or permission of instructor.

**EDS 621 ISSUES IN EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (3)**
Students will review, discuss and participate in supervised practicum experiences related to the preparation of special education teachers. Field work will include observation of sites of regular and special preschool programs, infant intervention programs, interdisciplinary child evaluation and demonstration of instructional methods and materials. Lecture: one hour; laboratory: two hours. Prereq: Admission to Master's Program in Special Education or permission of instructor and EDS 620.

**EDS 623 PRACTICUM IN EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (3-9)**
This course will provide supervised field experience in preparation of teachers or supervisors in early childhood education of the handicapped. May be repeated to a maximum of nine credit hours. Laboratory: Nine clock hours per credit hour. Prereq: Admission to Master's Program in Special Education, or permission of instructor.

**EDS 630 METHODS FOR TEACHING THE SEVERELY HANDICAPPED. (3)**
An intensive study of the principles and procedures used in programming learning activities for severely retarded/multiply handicapped students. Topical areas include the acquisition of stimulus control and programming for generalization and maintenance of induced behavior change. Lecture, three hours; laboratory, nine hours last 10 weeks of semester. Prereq: Course in applied behavior analysis and consent of instructor.

**EDS 631 BASIC SKILL TRAINING FOR THE SEVERELY HANDICAPPED. (3)**
Intensive review of instructional programs designed for use with severely retarded/multiply handicapped students. Emphasis is on developing learning activities/sequences and implementing those activities in a classroom with severely mentally handicapped children. To be taken concurrently with EDS 630. Lecture, three hours; laboratory, nine hours last 10 weeks of semester. Prereq: Consent of instructor.

**EDS 632 ADVANCED PRACTICUM IN SEVERE DEVELOPMENTAL DISABILITIES. (1-12)**
Intensive educational experience with severely retarded/multiply handicapped persons in educational, residential and hospital settings. Site and practicum responsibilities will be based on students' competencies and area of interest. May be repeated to a maximum of 20 credits. Prereq: Graduate standing and consent of instructor.

**EDS 633 SINGLE SUBJECT RESEARCH DESIGNS IN SPECIAL EDUCATION. (3)**
Principles and methods in designing single subject research with severely retarded/multiply handicapped students in educational settings. Students will be required to design and defend a research proposal. Prereq: Consent of instructor and one course in applied behavior analysis.

**EDS 701 PROSEMINAR FOR SPECIAL EDUCATION LEADERSHIP PERSONNEL. (1)**
Study of issues and topics affecting the preparation of special education personnel and of research issues involving handicapped persons and educational programs. May be repeated to a maximum of six credits. Lecture, two hours per week. Prereq: Admission into the Ed.S. or Ed.D. program.

**EDS 710 SEMINAR IN MILD LEARNING AND BEHAVIORAL DISORDERS. (3)**
Advanced study of issues related to mild learning and behavior disorders in children, including etiology, assessment, intervention, theories and contemporary research findings. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 711 SEMINAR IN SEVERE DEVELOPMENTAL DISABILITIES. (3)**
Advanced study of issues related to severe developmental disabilities, including problems of identification and assessment, program alternatives, curricula, theories, and contemporary research findings. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 712 SEMINAR IN SPECIAL EDUCATION PROFESSIONAL SERVICES. (3)**
Study of procedures for providing special education professional services including consultation, technical assistance, continuing education programs, professional organization development, committee and advisory board involvement, professional writing and editing, leadership training, and funding proposal development. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 720 SEMINAR IN SPECIAL EDUCATION TEACHER PREPARATION. (3)**
Study of the design and implementation of special education teacher preparation programs, including syllabus development, organization of class presentations, instructional alternatives, scheduling, student assessment, professor-student interactions, student advising, resource identification and utilization and program evaluation. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 721 PRACTICUM IN SPECIAL EDUCATION PERSONNEL PREPARATION.** (1-9)
Supervised practicum experiences related to the preparation of special education teachers, including practice in delivering lectures, conducting class discussions, leading seminars, directing independent studies, guiding student research projects, demonstrating instructional methods and materials, supervising special education student teachers and advising. Laboratory, three-nine hours. May be repeated to a maximum of nine credits. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 730 SEMINAR IN SPECIAL EDUCATION ADMINISTRATION.** (3)
Administration of special education programs at the local and state levels. Emphasis is on program planning, staffing, fiscal management and program evaluation. Prereq: EDS 602 and admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

**EDS 731 PRACTICUM IN SPECIAL EDUCATION ADMINISTRATION.** (1-9)
Supervised practicum experiences related to the administration of special education programs at the local and state levels, and project management, including staff management and development, program planning, evaluation, fiscal management, organization, reporting, communications, and coordination. Laboratory, three-nine hours. May be repeated to a maximum of nine credits. Prereq: Admission to the Ed.S. or Ed.D. program in special education administration or in certification program for special education administrators.

**EDS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EDS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EDS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**EDS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EDS 779 SEMINAR IN SPECIAL EDUCATION (Variable topic).** (1-3)
Study of philosophy, principles, trends and research in education of exceptional children. Students will carry on an extensive study of a problem dealing with education of the exceptional child. May be repeated to a maximum of nine credits.

**EDS 789 INDEPENDENT STUDY IN SPECIAL EDUCATION.** (1-6)
An independent study course for advanced graduate students with an interest in a specific problem in special education. Class hours by appointment. Prereq: Minimum of 12 semester hours in graduate work and consent of instructor.

**EDS 799 RESEARCH TECHNIQUES IN SPECIAL EDUCATION.** (3)
A study of the basic research techniques and their application to special education. Unique problems in special education will be discussed with emphasis on designing and conducting a research study. Computer usage will be discussed and students encouraged to use the computer as a research tool. Prereq: 12 graduate semester hours in special education including EDP 657 or equivalent.

## EDU Education

**EDU 300 SPECIAL COURSE.** (1-3)
This course is being proposed to provide an opportunity for offering experimental, topical or interdisciplinary courses on a one-time or two-time basis without creating a permanent course. The description will be submitted each time the course is offered. Prereq: Permission of instructor.

**EDU 305 CONTEMPORARY ISSUES FACING THE AT-RISK SCHOOL-AGE/ADOLESCENT CHILD.** (3)
To provide background information, experience, and skills for undergraduate students to interact with elementary and middle school children in a consulting role. Special emphasis will address the needs of the "at-risk" student population. The "at-risk" student is associated with families with incomes below the poverty level, as well as other significant problems which plague contemporary society—e.g., homelessness, child abuse/neglect, single parent homes, non-English speaking parents, fetal alcohol or substance abuse syndrome, mentally and/or physically handicapped parents or siblings, and high incidence of academic achievement declines and dropout rates. Lecture, two hours; laboratory, two hours per week. Prereq: Consent of instructor.

**EDU 645 FOUNDATIONS OF PEDAGOGICAL THEORY AND PRACTICE IN THE SECONDARY SCHOOL.** (0-9)
Students will participate with other secondary education majors in a variety of disciplines in the reflective study of adolescent behavior, secondary school curriculum, school law, learning theory, learning styles, effective teaching and learning, instructional technology, working with special populations, cultural diversity in the schools, school context, and professional development. Students will spend time in the schools applying concepts. May be repeated to a maximum of nine credits. Lecture, 3-9 hours; laboratory, 6-18 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

**EDU 745 INTERDISCIPLINARY INSTRUCTION IN THE SECONDARY SCHOOL.** (0-3)
Students will participate with other secondary education majors from a variety of disciplines in the reflective study of the context of schooling, classroom management, individual student differences, and professional development. Students will be in the schools applying concepts on a full-time basis. May be repeated to a maximum of three credits. Lecture, 1-3 hours; laboratory, 3-6 hours per week. Prereq: Admission to the Teacher Education Program and the M.A./M.S. in Education (Initial Certification Option–Secondary Education).

## EDV Education—Vocational

### AGRICULTURAL EDUCATION

**EDV 211 INTRODUCTION TO TRAINING AND DEVELOPMENT.** (3)
An orientation to the field of training and development from the human resource management perspective. Visits to organizations with training programs and supervised "shadowing (field experience)" experiences required.

**EDV 301 PLANNING, DESIGN, AND EVALUATION OF VOCATIONAL TRAINING.** (3)
To provide the student with a practical introduction to the major function of the training professional; planning, designing, and evaluating training programs for the workplace. Prereq: EDV 211.

**EDV 370 STUDENT TEACHING IN VOCATIONAL AGRICULTURE.** (9)
Practical application of methods in teaching various phases of vocational agriculture. To be taken concurrently with EDV 580, 581 and 583. Laboratory, 20 hours. Offered on a pass-fail basis only. Prereq: Second semester senior; admission to the Teacher Education Program or permission of instructor.

**EDV 520 THE ADULT LEARNER IN VOCATIONAL SETTINGS** (3)
An overview of adult education practices and their relevance to adult learning in the work setting. Prereq: EDV 211 or consent of instructor.

**EDV 580 MATERIALS AND METHODS FOR TEACHING VOCATIONAL AGRICULTURE.** (3)
Designed to develop teacher competency in methods of teaching with emphasis on the problem-solving procedure and use of demonstrations, field trips, and audiovisual materials. Evaluation of teaching-learning is emphasized. A study of facilities and instructional materials needed by a department of vocational agriculture is made. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDV 583 EXPERIENCE PROGRAMS IN VOCATIONAL AGRICULTURE.** (3)
Designed to develop teacher competencies to guide students to select, plan, carry out, and evaluate supervised experience programs in vocational agriculture, both production and off-farm. Prereq: Second semester senior; admission to the Teacher Education Program or permission of instructor.

### BUSINESS EDUCATION

**†EDV 511 TEACHING SECRETARIAL SUBJECTS.**

**†EDV 512 TEACHING ACCOUNTING SUBJECTS.**

**†EDV 513 TEACHING TYPEWRITING AND CLERICAL PRACTICE.**

**†EDV 514 TEACHING GENERAL BUSINESS SUBJECTS IN THE SECONDARY SCHOOLS.**

**EDV 615 PROBLEMS IN BUSINESS EDUCATION.** (3)
A study of advanced problems of interest to business teachers such as testing in business subjects, guidance, job studies, placement and follow-up, equipment, and supervision. May be repeated three times for a maximum of 12 credits.

**EDV 626 CLASSIFICATION AND POSSIBLE USE OF COMMUNITY RESOURCES IN BUSINESS EDUCATION.** (3)
Course provides for community analysis, and the development of possible ways and means to supplement the business education course in the secondary school with a study of vital community resources.

### DISTRIBUTIVE EDUCATION

**EDV 517 DETERMINING TEACHING CONTENT IN DISTRIBUTIVE EDUCATION.** (2-3)
Course construction in the field of distributive education. This course is planned to meet the needs of persons engaged as instructors in the field of distributive education. May be repeated for a maximum of six credits. Prereq: Admission to the Teacher Education Program or permission of instructor.

**EDV 528 TECHNIQUE OF TEACHING DISTRIBUTIVE EDUCATION.** (2-3)
A study of the methods of teaching as applied to distributive education. The purpose of the course is to train prospective teachers to teach in the field of distributive education. May be repeated to a maximum of six credits. Prereq: Admission to the Teacher Education Program or permission of instructor.

### HOME ECONOMICS EDUCATION

**EDV 365 STUDENT TEACHING IN HOME ECONOMICS.** (3-12)
Practical application of methods in teaching various phases of home economics. Offered on a pass-fail basis only. Prereq: EDV 586; admission to the Teacher Education Program or permission of instructor.

**EDV 588 HOME ECONOMICS EDUCATION PROGRAMS.** (3)
History, organization, and administration of home economics education programs. Study of career opportunities for home economics educators.

**EDV 685 HOME ECONOMICS CURRICULUM CONSTRUCTION.** (3)
A study of the underlying principles of curriculum building for junior and senior high school and adult education in home economics. Prereq: EDV 586, 362.

### INDUSTRIAL EDUCATION

**EDV 109 INSTRUCTIONAL MATERIAL IN INDUSTRIAL EDUCATION.** (2-3)
Components of a comprehensive course of study are identified and students engage in the validation and preparation of materials to be used in teaching. Emphasis is placed on planning and preparing those materials that individualize instruction in the vocational industrial course.

**EDV 110 PRINCIPLES OF INDUSTRIAL TEACHING.** (2-3)
Designed for the beginning vocational industrial teacher. Study is made of various accepted teaching procedures and class managerial activities with which the new shop teacher must be familiar.

**EDV 220 PRACTICUM IN INDUSTRIAL EDUCATION.** (3-9)
Observation and experience in teaching industrial occupations in area vocational schools and extension centers. The course emphasizes planning, methods, utilization of resources, safety education, teaching procedures, and evaluation. Lecture, one hour; laboratory, 9-30 hours.

**IND 222 OCCUPATIONAL INTERNSHIP FOR INDUSTRIAL TEACHERS.** (1-3)
Coordinated occupational experience in an industrial environment for persons desiring to become industrial teachers. Emphasis is given to the development of occupational competence, trade theory, meeting production schedules, employer-employee relations and industrial safety in the area of certification. Laboratory, 10 hours. May be repeated to a maximum of nine credits. Prereq: Two years of industrial experience in a single occupation or consent of instructor.

**IND 226 BASIC COMPETENCIES IN INDUSTRIAL OCCUPATIONS.** (3)
Skill development experience for new teachers and those desiring to become teachers of industrial occupations. Emphasis to be given to the development of work skills in laboratory situations, selection of proper tools and equipment, and safe work habits in the area of certification. May be repeated to a maximum of nine credits. Lecture, three hours; laboratory, three hours.

**IND 228 ADVANCED COMPETENCIES IN INDUSTRIAL OCCUPATIONS.** (3)
A study of advanced theories and practices in skills of industrial-technical occupations for present teachers and those desiring to become teachers. Emphasis is given to providing laboratory experience to attain competence necessary for teaching industrial competencies in the area of certification. May be repeated to a maximum of nine credits. Lecture, three hours; laboratory, three hours. Prereq: IND 226.

**EDV 352 STUDENT TEACHING FOR INDUSTRIAL AND EDUCATIONAL TRAINING DIRECTORS.** (3-12)
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. Offered on a pass-fail basis only.

**EDV 518 METHODS IN INDUSTRIAL EDUCATION.** (2 or 3)
A study of various principles and concepts of learning and how they relate to teaching in vocational industrial education. Emphasis is given to methods and techniques used in shop teaching and how these activities are associated with the principles and concepts of learning. May be repeated once to a maximum of four credits.

**IND 525 SUPERVISED WORK EXPERIENCE IN BUSINESS OR INDUSTRY.** (3)
For students planning careers as vocational teachers and directors. Includes education and experience under the supervision of college personnel and personnel in business and industry. May be repeated to a maximum of 12 hours.

**EDV 537 SPECIAL PROBLEMS IN INDUSTRIAL EDUCATION.** (1-3)
A study of the problem-solving process and its relationship to the solutions of the problems faced by vocational industrial teachers. Students learn to identify teaching problems and engage in activities that lead to their solutions. May be repeated to a maximum of six credits.

VOCATIONAL EDUCATION

**EDV 211 INTRODUCTION TO TRAINING AND DEVELOPMENT.** (3)
An orientation to the field of training and development from the human resource management perspective. Visits to organizations with training programs and supervised "shadowing (field experiences)" required.

**EDV 301 PLANNING, DESIGN AND EVALUATION OF VOCATIONAL TRAINING.** (3)
To provide the student with a practical introduction to the major function of the training professional; planning, designing and evaluating training programs for the workplace. Prereq: EDV 211.

**EDV 501 PRACTICUM IN VOCATIONAL EDUCATION.** (1-12)
Planned and supervised practicum in teaching agriculture, business, home economics and vocational industrial education at middle and high school levels. Requires the integration of observation skills, application of instructional objectives, teaching strategies, selection of instructional materials, assessment of student progress, and use of student organizations. Regularly scheduled seminars included as an integral part of course. Open only to students in the master's degree combined with initial teaching certification program. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

**EDV 516 PROBLEMS OF THE COORDINATOR IN VOCATIONAL EDUCATION.** (2-3)
A course to prepare coordinators of vocational education programs, including planning of local or area programs, use of advisory committees, selection of instructional materials and equipment, organizing instructional programs, and overall planning and operating of the program. May be repeated to a maximum of six credits.

**EDV 520 THE ADULT LEARNER IN VOCATIONAL SETTINGS.** (3)
An overview of adult education practices and their relevance to adult learning in the work setting. Prereq: EDV 211 or consent of instructor.

**EDV 535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION.** (2-3)
Study is made of philosophy, accepted principles, and legislation affecting programs in vocational education. May be repeated to a maximum of six credits.

**EDV 693 SUPERVISION IN VOCATIONAL EDUCATION.** (3)
This course includes practice in teaching for observation by others, student teaching, and school visiting. Prereq: Two years of teaching experience and EDV 687.

**EDV 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES.** (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision-making. (Same as EDP 702.)

**EDV 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EDV 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

## EE Electrical Engineering

**EE 101 ELECTRICAL ENGINEERING PROFESSIONS SEMINAR.** (1)
Introductory seminar on professional practice, growth, conduct and ethics. Presentations on computers in electrical engineering and the University computer system. Presentations from career engineers and professional societies and reading assignments in professional journals. Pass/fail only.

**EE 211 CIRCUITS I.** (4)
Fundamental laws and principles for linear circuits whose elements consist of passive and active components used in present day engineering practice. Determination of the sinusoidal steady state responses using the algebra of complex numbers. Lecture, three hours; recitation-laboratory demonstration, one two-hour session. Prereq: MA 114; prereq, or concur: PHY 232, 242.

**EE 221 CIRCUITS II.** (3)
General analysis methods for linear circuits and systems. Discrete time approximations. State variable methods for both analog and digital circuits. Prereq: EE 211. Concur: MA 214.

**EE 222 ELECTRICAL ENGINEERING LABORATORY I.** (2)
Laboratory exercises in the use of measuring instruments. Experiments in R-L-C circuit analysis. Lecture, one hour; laboratory, three hours. Prereq or concur: EE 221.

**EE 280 DESIGN OF LOGIC CIRCUITS.** (3)
Boolean algebra; combinational logic circuits, synchronous sequential circuits; asynchronous sequential circuits; design problems using TTL integrated circuits. Prereq: CS 222.

**EE 305 ELECTRICAL CIRCUITS AND ELECTRONICS.** (3)
A study of DC and AC electrical circuits, electronics principles and applications to instrumentation. Prereq: PHY 232, MA 114.

**EE 306 ELECTRICAL CIRCUITS AND MACHINERY.** (3)
A study of AC and DC electrical circuits, single and three-phase systems, AC and DC machines and their control. Prereq: MA 114, PHY 232.

**EE 307 CIRCUIT ANALYSIS WITH APPLICATIONS.** (4)
A service course covering electrical engineering principles for engineering or science students with majors outside of electrical engineering. Topics include circuit analysis, applications to electromechanical machines and analog and digital electronics. Not available to electrical engineering majors. Prereq: PHY 232.

**EE 380 MICROCOMPUTER ORGANIZATION.** (3)
Hardware and software organization of a typical computer; machine language and assembler language programming, interfacing peripheral devices, and input-output programming; real-time computer applications, laboratory included. Prereq: EE 280 or CS 245. (Same as CS 380.)

**EE 395 INDEPENDENT WORK IN ELECTRICAL ENGINEERING.** (1-6)
Special research and problems for individual students who are capable of pursuing independent investigations. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**EE 402G ELECTRONIC INSTRUMENTATION AND MEASUREMENTS.** (3)
Elementary laboratory treatment of electronic circuits. Topics will include AC circuits, filters, simple circuits using transistors and other semiconductor devices, simple treatment of operational amplifiers, and an introduction to digital circuits. Lecture, two hours; laboratory, three hours. Prereq: EE 305 or PHY 242 or consent of instructor. (Same as PHY 402G.)

**EE 415G ELECTROMECHANICS.** (3)
Study of electric machines and electromechanical systems. Prereq: EE 221 with a **C** or better and PHY 232.

**EE 416G ENERGY CONVERSION LABORATORY.** (2)
Laboratory practice and experimental studies related to EE 415G. Lecture one hour; laboratory, three hours. Prereq or concur: EE 415G.

**EE 421G SIGNALS AND SYSTEMS I.** (3)
An introduction to the modeling and analysis of signals and systems. Topics include convolution, Fourier series, Fourier Transform bandwidth, basic filter design, modulation techniques, random variables and random processes and spectral density. Prereq: MA 214 and a "C" or better in EE 221.

**EE 422G SIGNALS AND SYSTEMS II.** (3)
A continuation of the analysis of signals and linear systems with an emphasis on feedback and discrete-time systems. Topics include the Laplace and Z-transforms, frequency domain modeling techniques, feedback principles, state variables, sampling and digital filter design. Prereq: EE 421G, engineering standing.

**EE 461G INTRODUCTION TO ELECTRONICS.** (3)
Analysis and design of electronic circuitry incorporating nonlinear electronic elements such as transistors, FET's, and vacuum tubes. Applications to amplifiers. Prereq: A grade of **C** or better in EE 221.

**EE 462G ELECTRONIC CIRCUITS LABORATORY.** (2)
Experimental exercises in the design and analysis of useful electronic circuits incorporating semiconductor devices: transistors, tunnel and Zener diodes; also, vacuum tubes, integrated circuits and operational amplifiers. Lecture, one hour; laboratory, three hours. Prereq: EE 222, CS 222; prereq or concur: EE 461G.

**EE 468G FIELDS AND WAVES.** (4)
Applications of electromagnetic theory; electrostatic and magnetostatic fields; Maxwell's field equations; plane waves; transmission lines and waveguides; antennas and radiation. Prereq: Engineering standing.

**EE 481 LOGICAL DESIGN LABORATORY.** (2)
A laboratory involving the design and implementation of logic circuits. Combinational and sequential (both synchronous and asynchronous) design examples using small and medium scale integrated circuits. Lecture, one hour; laboratory, one three-hour session. Prereq: EE 222, EE 280, and a **C** or better in EE 221.

**EE 499 ELECTRICAL ENGINEERING DESIGN (Subtitle required).** (3)
A course for senior students in electrical engineering with an emphasis on the engineering design processes requiring the creative involvement of students in open-ended problems relating to actual designs that are appropriate to the profession of electrical engineering. Prereq: Senior standing in electrical engineering and consent of the course coordinator.

**EE 511 INTRODUCTION TO COMMUNICATION SYSTEMS.** (3)
An introduction to the basic signal processing operations in communications systems. Topics include frequency and time domain signal and system representation, random signals, modulation, sampling, pulse modulation, information theory. Prereq: EE 421G and engineering standing.

**EE 512 DIGITAL COMMUNICATION SYSTEMS.** (3)
A treatment of the basic signaling concepts involved in the communication of digital information. Topics include transmission requirements and distortion of digital signals; discrete amplitude, frequency, and phase modulation; error control coding. Prereq: EE 421G and engineering standing or consent of instructor.

**#EE 516 POWER SEMICONDUCTOR MODELS.** (3)
Analyze and develop circuit models for power semiconductor devices. Develop an understanding of their design and application. Develop the background to be an intelligent user of modern electronic circuit simulation programs and open a window to understanding the literature on semiconductor devices. Prereq: EE 461G, EE 468G and engineering standing.

**EE 517 ADVANCED ELECTROMECHANICS.** (3)
Dynamics of electromechanical systems and rotating electrical machines. Applications of electro-magnetic theory to electrical machines. Certain special topics of current interest. Prereq: EE 415G and engineering standing.

**EE 518 ELECTRIC DRIVES.** (3)
Introduction to common power electronic converters used in electric motor drives. Steady-state analysis methods for electric machines fed by power conditioning converters. Performance prediction of electric machines by electromagnetic field theory and by coupled oil models. Prereq: EE 415G and engineering standing.

**EE 522 ANTENNA DESIGN.** (3)
Principles of radiation, potential solution to Maxwell's equations for current in empty space, electrically small antennas, antenna arrays, wire antenna principles, introduction to numerical methods, aperture antennas, frequency scaling antennas, receiving properties of antennas, antenna measurement techniques. Prereq: EE 468G and engineering standing.

**EE 523 MICROWAVE CIRCUIT DESIGN.** (3)
Physical and mathematical descriptions of wave propagation in guided structures; microstrip lines; microwave integrated circuits; passive components; two-terminal devices; four-terminal devices; S-parameter concept; equivalent circuit concept; solid state microwave amplifiers and oscillators. Prereq: EE 468G and engineering standing.

**EE 527 ELECTROMAGNETIC COMPATIBILITY.** (3)
Design of electronic systems to minimize 1) emission of electromagnetic signals that cause interference in other electronic systems, 2) the susceptibility of that system to electromagnetic signal from other electronic systems, and 3) the susceptibility of that system to its own, internally generated signals. A set of brief laboratory experiments demonstrate the design principles and provide familiarity with modern test equipment. Prereq: EE 468G and engineering standing.

***EE 530 ROBOTICS.** (3)
Methods of analysis, design, and operation of industrial and mobile robots. Kinematic and dynamic models of mechanical manipulators. Electromechanical drive systems. Robotic vision and sensors. Control and optimization of motion trajectories. Control programming. Current topics of interest from the literature. Prereq: EE 415G or EE 306, EE 422 or ME 343, EM 313 or EM 230, and engineering standing.

**EE 537 ELECTRIC POWER SYSTEMS I.** (3)
Application of symmetrical components to power system fault studies, calculation of transmission line parameters. Prereq: Engineering standing and consent of instructor.

**EE 538 ELECTRIC POWER SYSTEMS II.** (3)
Introduction to modern power system practices, basic transient and steady-state stability analysis with emphasis on digital techniques. Prereq: Engineering standing and consent of instructor.

**EE 560 SEMICONDUCTOR DEVICE DESIGN.** (3)
Theory, development and discussion of equivalent circuit models of transistor devices, negative resistance, semiconductor devices and praetersonic devices based on electronic processes in solid state elements. High and low frequency, as well as the Ebers-Moll and charge control switching models and their application in computerized electronic circuit analysis will be developed. Prereq: EE 461G or equivalent, and engineering standing.

**EE 561 ELECTRIC AND MAGNETIC PROPERTIES OF MATERIALS.** (3)
Study of dielectric and magnetic materials. Topics include dielectric relaxation, conduction and breakdown mechanisms, liquid crystals, ferroelectrics, magnetic resonance and relaxation, measurement techniques. Prereq: MSE 212 and PHY 361 or EE 461G or consent of instructor. (Same as MSE 561.)

**EE 562 ANALOG ELECTRONIC CIRCUITS.** (3)
Feedback amplifiers, tuned and untuned amplifiers, oscillators, AM and FM transmitters. Prereq: EE 461G and engineering standing.

**EE 564 DIGITAL ELECTRONIC CIRCUITS.** (3)
Timing, scanning, trigger/logic and pulse circuits; video and broad band R-F amplifiers. Prereq: EE 461G and engineering standing.

**EE 565 CIRCUIT DESIGN WITH ANALOG INTEGRATED CIRCUITS.** (3)
Design of circuits using popular analog integrated circuits such as operational amplifiers, voltage comparators, timers, function generators, voltage/frequency and frequency/voltage converters, digital/analog and analog/digital converters. Lecture, two hours; laboratory, three hours per week. Prereq: EE 461G and 462G.

**EE 567 INTRODUCTION TO LASERS AND MASERS.** (3)
Basic principles of laser action; atomic transitions; population inversion; two and three level systems; optical resonators; pumping methods; applications. Prereq: Engineering standing or consent of instructor. (Same as PHY 567.)

**EE 568 FIBER OPTICS.** (3)
The course presents theory and practice related to (a) fiber optic cable and their fabrication, (b) fiber optic transmitters and detectors, (c) fiber optic communication systems and (d) fiber optic remote sensors. Prereq: EE 468G. (Same as MSE 568.)

**EE 571 FEEDBACK CONTROL DESIGN.** (3)
System representation via transfer function and state variables, root locus analysis; Bode plots; compensation by root-locus and frequency response methods; state variable feedback; sensitivity analysis; tracking via output feedback; digital control systems. Prereq: EE 421G and engineering standing.

**EE 572 DIGITAL CONTROL OF DYNAMIC SYSTEMS.** (3)
Zero and first order hold, theory of analog to digital and digital to analog conversion. Z-transform analysis, discrete state variable analysis, discrete estimation techniques, error analysis of discrete systems. Prereq: EE 422G, engineering standing.

***EE 581 ADVANCED LOGICAL DESIGN.** (3)
Medium-scale and large-scale digital components; register-transfers; bus-structures; controller/process organizations. Design of arithmetic processors and stored-program computers. Microprogramming. Prereq: EE 280 and EE/CS 380; engineering standing or upper division computer science standing.

***EE 583 MICROPROCESSORS.** (3)
A course in the hardware and software of microprocessors. Assembly language programming, address decoding, hardware interrupts, parallel and serial interfacing with various special purpose integrated circuits. Each student is expected to do homework assignments using microprocessor hardware. This will be arranged by special appointment through the instructor. Prereq: EE 280 and EE/CS 380; engineering standing or upper division computer science standing.

**#EE 584 INTRODUCTION OF VLSI DESIGN AND TESTING.** (3)
Introduction to the design and layout of Very Large Scale Integrated (VLSI) Circuits for complex digital systems; fundamentals of the VLSI fabrication process; and introduction to VLSI testing and structured design for testability techniques. Prereq: Engineering standing and EE 461 or consent of instructor.

***EE 585 FAULT TOLERANT COMPUTING.** (3)
Fault models in logic networks will be developed and then various testing techniques for detection of faults in logic networks will be discussed. Systematic approach for designing logic networks for testability will be introduced. Self testing and fault tolerant design of logic systems using coding theory will be covered. Prereq: EE 581 or consent of the instructor, engineering standing or upper division computer science standing.

***EE 587 MICROCOMPUTER SYSTEMS DESIGN.** (3)
A course in the design of microcomputer systems for hardware engineers which includes the following topics: use of uncommitted logic arrays in instruction set design; hardware support for operating systems and programming languages; customizing microcomputers for specific execution environments; and control of concurrency. Prereq: EE 581 and EE 583, or consent of instructor, engineering standing or upper division computer science standing. (Same as CS 587.)

**EE 595 INDEPENDENT PROBLEMS.** (1-3)
For electrical engineers. A problem, approved by the chairperson of the department, provides an objective for study and research. May be repeated to a maximum of six credits. Prereq: 2.5 standing and engineering standing.

**EE 599 TOPICS IN ELECTRICAL ENGINEERING (Subtitle required).** (2-3)
A detailed investigation of a topic of current significance in electrical engineering such as biomedical instrumentation, digital filter design, active networks, advanced electrical devices, digital communications, display of electronics. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the EE 599 number. Prereq: Equivalent of two 400-level courses in electrical engineering, consent of instructor and engineering standing.

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in electrical engineering or its equivalent.

**EE 601 ELECTROMAGNETIC ENERGY CONVERSION I.** (3)
Generalized electric machine theory; parameter determination. Energy conversion in continuous media including magnetohydrodynamics. Prereq: Consent of instructor.

**EE 602 ELECTROMAGNETIC ENERGY CONVERSION II.** (3)
Continuation of EE 601 with special reference to energy conversion in nonlinear media; numerical methods; irregular boundaries. Prereq: Consent of instructor.

**EE 603 POWER ELECTRONICS.** (3)
Study of solid-state power electronic devices and their applications in power conditioned electric motor drive systems. Examination of control philosophies, steady-state models, and numerical simulation of characterizing differential equations. Current topics of interest from the literature. Prereq: EE 517 and EE 571 or consent of instructor.

**EE 604 SWITCH MODE CONVERTERS.** (3)
Study of analysis techniques for switching mode converters and associated control practices. Boost, buck, buck-boost, flyback, and Cuk topologies in both continuous and discontinuous conduction modes are presented. Numerical solution, state-space averaging, and linearization techniques are applied to predict performance and formulate transfer characteristics. Prereq: EE 517 or consent of instructor.

**EE 605 SYSTEMS FOR FACTORY INFORMATION AND CONTROL.** (3)
Systems approach to manufacturing. Hardware and software for real time control and reporting. Sensor and actuators, controllers, networks, databases, hierarchical and distributed control, CAD/CAM systems, flexible manufacturing systems, group technology, modeling and simulation of factory operations. Lecture, two hours; laboratory, two hours. Prereq: MFS 505. (Same as MFS 605.)

**EE 606 SEMINAR AND PROJECT IN MANUFACTURING SYSTEMS ENGINEERING.** (3)
A project course for manufacturing systems. Course consists of seminar presentations by outside professionals and faculty and a course project on a realistic manufacturing systems assignment. Lecture, two hours; laboratory, two hours. (Same as ME/MFS 606.)

**EE 607 ELECTRIC MACHINE DESIGN.** (3)
Design principles; specifications; magnetic and electric loadings, and output coefficients; magnetic circuit performance from design; design optimization techniques; sample designs. Prereq: EE 415G or equivalent.

**EE 608 ADVANCED TOPICS IN POWER ELECTRONICS (Subtitle required).** (3)
Study of emerging research and design practices in power electronic circuits and power conditioned electric motor drives. A review and extension of selected topics in the current literature. May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor.

**EE 611 DETERMINISTIC SYSTEMS.** (3)
Concepts of linear systems, singularity functions, convolution and superposition integrals, state-variable method for linear systems, relation between transfer function and state-variable equations, fundamental matrix, state-transition matrix, unit-impulse response matrix, and transmission matrix. Prereq: EE 421G.

**EE 612 COMPUTATIONAL ASPECTS OF ROBOTICS.** (3)
Study of computer hardware and programming issues involved in applying the mathematical equations that describe robotic mechanisms; examples include robot manipulators and legged vehicles. Study of environment-adaptive sensor-integrated control strategies and structures. Prereq: EE 530 or consent of instructor.

**EE 613 OPTIMAL CONTROL THEORY.** (3)
State-space modeling of control systems; variational techniques; system optimization by maximum principle, dynamic programming; Hamilton-Jacobi equations design of linear optimal systems; computational methods for solving boundary value problems. Prereq: EE 611.

**EE 614 SAMPLED-DATA CONTROL SYSTEMS.** (3)
Basic theory of sampling, the pulse-transfer function, Z-transform analysis of sampled-data control systems, modified Z-transforms, general design principles, analysis of multi-rate, variable-rate and nonsynchronized sampled-data systems. Prereq: EE 421G or consent of instructor.

**EE 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH.** (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as OR/STA 619 and MA 613.)

**EE 621 ELECTROMAGNETIC FIELDS.** (3)
Development of electromagnetic field theory from the basic postulates of Maxwell's equations in differential and integral forms, solution to static, quasistatic, and wave-propagation problems. Radiation from dipole antenna elements. Prereq: EE 468G.

**EE 622 ADVANCED ELECTRODYNAMICS.** (3)
Solution methods for applied electrodynamics problems; uniqueness, equivalence, duality, reciprocity; linear space methods; wave solutions in separable coordinate systems; classical problems in cartesian, cylindrical, and spherical coordinates. Prereq: EE 468G.

**EE 627 MULTICONDUCTOR TRANSMISSION LINES.** (3)
Analysis of electromagnetic coupling in multiconductor transmission lines. Emphasis on modeling the line for the purposes of predicting crosstalk and incident field effects. Applications to interference prediction, power transmission line transients, and synthesis of microwave filters and circuits. Prereq: EE 468G or consent of instructor.

**EE 630 DIGITAL SIGNAL PROCESSING.** (3)
An introductory treatment of the basic concepts of signal processing via time and frequency domain (Z-transform) methods and a survey of procedures for designing, implementing and using digital signal processors. Prereq: EE 512 or consent of instructor.

**EE 635 IMAGE PROCESSING.** (3)
The course outlines applications of image processing and addresses basic operations involved. Topics covered include image perception, transforms, compression, enhancement, restoration, segmentation, and matching. Prereq: Graduate standing and consent of instructor. (Same as CS 635.)

**EE 639 ADVANCED TOPICS IN SIGNAL PROCESSING AND COMMUNICATIONS.** (3)
Advanced topics in signal processing and communications research and design topics of current interests, such as optical processing, pattern recognition, satellite systems, and digital communication networks. A review and extension of current literature and selected papers and reports. May be repeated to a maximum of nine credits. Prereq: Advanced graduate standing.

**EE 640 STOCHASTIC SYSTEMS.** (3)
Random variables, stochastic processes, stationary processes, correlation and power spectrum, mean-square estimation, filter design, decision theory, Markoff processes, simulation. Prereq: EE 421G.

**EE 642 DISCRETE EVENT SYSTEMS.** (3)
The objective of the course is to prepare students for research in the field of supervisory control of discrete event systems (DES's). Logical models, supervising control. Stability and optimal control of DES, complexity analysis and other related research areas will be covered. Prereq: Graduate standing or consent of instructor. (Same as CS 642.)

**EE 660 ELECTRONIC DEVICE DESIGN.** (3)
An integrated treatment of the theory and application of electronic devices with emphasis on methods of engineering analysis and design. Prereq: EE 560 and consent of instructor.

**EE 661 SOLID-STATE ELECTRONICS.** (3)
Bose and Fermi statistics; semiconductor theory; solid-state devices; electrical properties of insulators; theory and applications of magnetic materials, including ferrites. Prereq: EE 461G.

**EE 664 SAW DEVICE DESIGN, MODELING, AND APPLICATIONS.** (3)
Analysis of physical principles of Surface Acoustic Wave (SAW) devices on piezoelectric substrates and their application to the design of these devices. The use of these devices in a wide range of high-frequency signal processing applications will be covered, and computer aided design techniques for analysis and design will be surveyed. Prereq: EE 421G, 468G, and 560.

**EE 672 MOLECULAR PROPERTIES IN ELECTRONIC DEVICES.** (3)
The study of molecular properties and the application of these properties in electronic devices. Correlation of molecular energy states with infrared and Raman spectra; selection rules and intensities of transitions; instrumentation for molecular investigation; applications. Prereq: Consent of instructor.

**EE 682 SWITCHING THEORY.** (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 280 or consent of instructor. (Same as CS 682.)

**EE 683 FINITE-STATE MACHINES.** (3)
Analysis and synthesis of sequential machines via state-tables and regular expressions. Equivalence, minimization and decomposition of machines. Partitions and structure-theory. Identification and diagnosis of finite-state machines by means of input-output experiments. Linear, finite-memory, and information-lossless machines. Prereq: EE 280. (Same as CS 683.)

**EE 684 INTRODUCTION TO COMPUTER AIDED DESIGN OF VLSI CIRCUITS.** (3)
Computer aided design of Very Large Scale Integration (VLSI) circuits. Topics include: VLSI technologies, CMOS circuit characteristics, computer aids in the design of VLSI circuits, use of various CAD tools for layout, circuit design, logic design, and functional design, and the use of VLSI circuits in the system design. A design project is required. Prereq: EE 581 and EE 461G or consent of instructor.

**EE 685 DIGITAL COMPUTER STRUCTURE.** (3)
Study of fundamental concepts in digital computer system structure and design. Topics include: computer system modeling based on instruction set processor (ISP) and processor-memory-switch (PMS) models, design and algorithms for ALU, processor, control unit and memory system. Special topics include floating-point arithmetic, cache design, pipeline design technologies, and parallel computer architectures. Prereq: EE 380 and EE 581 or consent of instructor.

**EE 686 ADVANCED COMPUTER ARCHITECTURE DESIGN.** (3)
A study of current diverse advanced architectures such as microprogrammed, parallel, array and vector, networked, and distributed architectures; applications and example systems employing these architectures; matching applications to architectures; consideration of architectures of the future. Prereq: EE 685.

**EE 688 NEURAL NETWORKS.** (3)
The purpose of this course is to introduce various aspects of the neural networks and neurocomputing. The course starts with an introduction to Learning Machines and analyzes various learning algorithms such as Hebbian, Grossberg's and Kohonen's learning algorithms. Some of the neural networks that will be studied in detail are: Backpropagation nets, Hopfield nets, Adaptive Resonance Theory, Adaline and Madalines, Kohonen's Self learning nets, BAMs, Neocognition, etc. Students will implement a minimum of three learning algorithms. Prereq: Graduate standing. (Same as CS 688.)

**EE 699 TOPICS IN ELECTRICAL ENGINEERING (Subtitle required).** (3)
A detailed study of a topic of current interest in electrical engineering. May be repeated to a maximum of six credits, but only three credits may be earned under the same subtitle. A particular topic may be offered at most twice under the EE 699 number. Prereq: Consent of instructor.

**EE 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EE 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**EE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EE 783 SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING.** (1-3)
Open to graduate students only. Individual work on an assignment approved by the chairperson of the department. May be repeated to a maximum of nine credits.

**EE 784 RESEARCH PROJECT IN ELECTRICAL ENGINEERING.** (3)
Individual study related to a special research project supervised by the student's advisor. A final written report on the project is required. This course is open only to and required by students pursuing the MSEE degree with a non-thesis option (Plan B). The course cannot satisfy part of the required 30 hours of course work for Plan B. Prereq: Approval of student's MSEE advisor.

## EGR Engineering

**EGR 399 COOPERATIVE ENGINEERING EDUCATION.** (1)
A course designed for undergraduate students who, through the engineering cooperative education office, secure full-time, salaried, career-related positions under the supervision of a sponsoring employer. Enrollment in the course constitutes full-time status. Course may be taken on a pass-fail basis only and may be repeated on a rotational basis to a maximum of six credit hours. Prereq: Approval of Coordinator of Cooperative Engineering Education.

**EGR 537 NUMERICAL ANALYSIS.** (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent, or graduate standing or consent of instructor. Knowledge of a procedural computer language is required. (Same as CS/MA 537.)

**EGR 599 TOPICS IN ENGINEERING (Subtitle required).** (1-3)
An experimental, interdisciplinary course devoted to a topic of interest to students in several departments of the college. May be repeated to a maximum of six credits, but only three credits may be earned under the same title. A particular topic may be offered at most twice under the EGR 599 number. Prereq: Variable, given when topic is identified.

**EGR 611 BOUNDARY ELEMENT METHODS IN ENGINEERING.** (3)
Introduction of boundary element methods for use in solving common engineering equations, such as the Laplace equation, the Poisson equation, the wave equation, and the diffusion equation. Both the theoretical and numerical aspects of the boundary element technique are presented. Application areas include heat conduction, potential flow problems, acoustic wave propagation, general diffusion, and stress analysis. Prereq: EGR 537 or consent of instructor. (Same as ME 611.)

**EGR 621 FINITE ELEMENT ANALYSIS IN ENGINEERING.** (3)
Theoretical and computational basics of the finite element method. Development of element relationships and calculations, assembly and efficient solution of the finite element equations. Weak formulations are presented for both steady and transient 1D, 2D, 3D problems. Prereq: MA 432G and EGR 537 or consent of instructor.

**EGR 622 ADVANCED FINITE ELEMENT ANALYSIS IN ENGINEERING.** (3)
Advanced topics in finite analysis including: weighted residual methods, variational principles, mixed and hybrid finite element formulations, advanced interpolation schemes and nonlinear formulations and analysis. Primary areas of emphasis are structural and solid mechanics. Prereq: EGR 621.

**EGR 680 ENGINEERING APPLICATIONS OF STOCHASTIC DIFFERENTIAL EQUATIONS.** (3)
Review of applied differential equations, probability and stochastic processes. Stochastic calculus. Engineering systems governed by random ordinary differential equations: solution processes for random initial conditions, random forcing terms and random parameters, examples. Engineering systems governed by partial differential equations: stochastic evolution equations; semigroup solutions; worked examples for the heat transfer equation, the groundwater flow equation and the advection-dispersion equation. Credit will not be given to students who already have credit in EE 640. Prereq: MA/STA 320 or STA 424G, MA 485 or equivalent.

## EM Engineering Mechanics

**EM 221 STATICS.** (3)
Study of forces on bodies at rest. Vector algebra; study of force systems; equivalent force systems; distributed forces; internal forces; principles of equilibrium; application to trusses, frames and beams; friction. Prereq or concur: MA 213.

**EM 230 MECHANICS FOR ELECTRICAL ENGINEERS.** (3)
Principles of statics. Principles of dynamics of a particle and a system of particles, with emphasis on applications in electromagnetics. Computer solutions included. Students may not receive credit for EM 221 and EM 230. Prereq or concur: MA 213 and PHY 232.

**EM 302 MECHANICS OF DEFORMABLE SOLIDS.** (3)
A study of stress and strain in deformable solids with application primarily to linear elastic materials: stress and strain transformations; simple tension and compression of axial members; torsion of shafts; bending of beams; combined loading of members; buckling of columns. Prereq: Registration in the College of Engineering or consent of chairperson, and EM 221; prereq or concur: MA 214.

**EM 303 DEFORMABLE SOLIDS LABORATORY.** (1)
Experimental studies of the mechanical properties of materials and structural elements. Laboratory, four hours per week for three-fourths of the semester. Prereq or concur: EM 302.

**EM 313 DYNAMICS.** (3)
Study of the motion of bodies. Kinematics: cartesian and polar coordinate systems; normal and tangential components; translating and rotating reference frames. Kinetics of particles and rigid bodies: laws of motion; work and energy; impulse and momentum. Prereq: Registration in College of Engineering or consent of chairperson and EM 221, MA 214, and CS 221 or CS 222 or CS 223.

**EM 506 MECHANICS OF COMPOSITE MATERIALS.** (3)
A study of the structural advantages of composite materials over conventional materials, considering high strength-to-weight and stiffness-to-weight ratios. Fiber reinforced, laminated and particulate materials are analyzed. Response of composite structures to static and dynamic loads, thermal and environmental effects, and failure criteria are studied. Prereq: EM 302, engineering standing or consent of instructor. (Same as MSE 506.)

**EM 510 DYNAMICS AND DESIGN OF ROBOT MANIPULATORS.** (3)
Analysis of the design and operation of robotic systems. Emphasis on robot kinematics, dynamics, differential motion, manipulator Jacobian, motion trajectories, geometric modeling, force and vibration analyses. Various practical applications and real cases are investigated. Prereq: ME 340 or both EE 420G and EM 230. (Same as ME 510.)

**EM 513 MECHANICAL VIBRATIONS.** (3)
The analysis of vibrational motion of structural and mechanical systems. Single-degree-of-freedom systems; free vibrations; nonperiodic excitation; harmonic excitation. Modal analysis of multiple-degree-of-freedom systems. Vibration of continuous bodies, including strings and bars (axial, torsional and flexural modes). Energy methods. Prereq: EM 313 and EM 302, engineering standing or consent of instructor.

**EM 531 ADVANCED STRENGTH OF MATERIALS.** (3)
Unsymmetrical bending of beams, thin plates, stress analysis of thick-walled cylinders, and rotating discs. Theory of elastic energy, curved beams, stress concentration, and fatigue. Prereq: EM 302 and engineering standing.

**EM 533 AIRCRAFT AND MISSILE STRUCTURAL ANALYSIS.** (3)
Thin-walled structures used in aircraft, missile, and pressure vessel applications are studied. The response of thin-walled structures to flexure, torsion, pressure loads and temperature variations is analyzed by energy and approximate methods. Study of conventional and advanced composite materials, and the effects of creep and plasticity. Prereq: EM 302 or equivalent and engineering standing.

**EM 556 INTRODUCTION TO COMPOSITE MATERIALS.** (4)
Applications, materials selection and design of composite materials. Relation between properties of constituent materials and those of composite. Processing methods for materials and for some structures. Lab focuses on preparation and testing of composite materials and their constituents. Lecture, three hours; laboratory, three hours per week. Prereq: MA 214, CHE 236, PHY 232, MSE 201, or consent of instructor. (Same as MSE 556.)

**EM 585 FOURIER SERIES AND BOUNDARY VALUE PROBLEMS.** (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432G or equivalent. (Same as MA 485G.)

**EM 601 PRINCIPLES OF CONTINUUM MECHANICS.** (3)
Mathematical background including vector spaces, linear transformations, and vector analysis. Continuum balance principles of mass, momentum, angular momentum, and energy, and the entropy inequality. Modeling principles of material frame indifference and material symmetry. Constitutive equations for nonlinear thermoelastic materials with heat conduction and viscous dissipation. Linearization to classical linear elasticity and linear viscous fluids. Prereq: MA 432G or equivalent and EM 531 or ME 531 or equivalent.

**EM 603 MECHANICS OF PLASTIC SOLIDS I.** (3)
Permanent changes in shape of solid materials occur as plastic deformations in many engineering applications, such as extrusion, forging and rolling. This course examines the experimental basis and fundamental theoretical framework for plastic materials. The analysis of plastic deformations in simple bending, torsion, tension and compression, and some two dimensional problems are presented. Connection between mechanics parameters, design variables and metallurgical phenomena are discussed. Limit analysis is studied. Prereq: EM 503 or EM 651 or consent of instructor.

**EM 628 APPLIED MATHEMATICS IN THE NATURAL SCIENCES II.** (3)
Continuation of EM/MA 527 with emphasis on special topics and techniques applied to partial differential equations that occur in various physical field theories. Field equations of continuum mechanics of solids and fluids are reviewed. The method of characteristics, elliptic functions and integrals, Legendre polynomials, Mathieu functions, integral equations and transforms, and the methods of potential theory are examples of selected topics studied in introductory applications. Intended for students in applied mathematics, science and engineering. Prereq: EM/MA 527. (Same as MA 628.)

**EM 645 ADVANCED DYNAMICS I.** (3)
Many physical systems in engineering involve rigid bodies in translation and rotation. Such motions are studied in this course by the use of Euler's Laws. The kinematical description of the motions utilize the concept of reference frames. The inertia properties of rigid bodies, and the energy functions for rigid bodies are covered. Analytical and numerical solutions of dynamical systems of engineering interest are considered. Prereq: EM 313; prereq, or concur: MA 432G.

**EM 651 MECHANICS OF ELASTIC SOLIDS I.** (3)
Many engineering applications involve the use of materials that behave elastically when performing their designed function. This course concerns the general analysis of small deformations, stress, and stress-deformation relations for elastic bodies. The solution of typical problems frequently encountered in engineering applications, e.g., extension, bending, and torsion of elastic bars, stress concentrations and thermoelastic behavior, are studied. Some modern computational methods currently used in engineering practice are introduced. Prereq: MA 432G or consent of instructor.

**EM 652 MECHANICS OF ELASTIC SOLIDS II.** (3)
Continuation of EM 651 with more attention to the fundamental structure of and important historical and contemporary contributions to elastic theory. Extensive use of modern computational methods that were introduced in the first course will provide familiarity with the solution of larger scale, industrially important elasticity problems. Application of the boundary integral equation method (BIE) will be emphasized. Some use also will be made of the finite element method, primarily for comparison with BIE. Instruction will include "hands-on" experience with digital-computer program packages. Prereq: EM 651 or consent of instructor.

**EM 653 METHODS OF APPLIED DIFFERENTIAL EQUATIONS.** (3)
Integrals of nonlinear partial differential equations; similarity variables and other transformations; perturbation methods; weighted residual methods; numerical methods; selected topics. Prereq: MA 432G or consent of instructor.

**EM 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EM 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EM 760 RESEARCH PROJECT IN ENGINEERING MECHANICS.** (0)
Individual study related to a special research project supervised by the student's adviser. A final written report on the project is required. Prereq: Approval of director of graduate studies.

**EM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**EM 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EM 780 SPECIAL PROBLEMS IN ENGINEERING MECHANICS.** (3)
A mechanism for special and individualized study of a wide range of topics of interest to the advanced student of engineering mechanics. May be repeated to a maximum of nine credits. Prereq: Approval of director of graduate studies.

## ENG English

**ENG 098 ENGLISH FOR SPEAKERS OF OTHER LANGUAGES.** (3)
This course is a writing course designed to provide international undergraduate students with a firm basis in the rhetorical patterns of written English and in the grammatical structures and expressions associated with those patterns. It also serves as an introduction to the analysis and organization of information as found in English paragraphs and essays. Emphasis is placed upon writing beyond the sentence level. Students must attain at least a C in order to enter ENG 099. The course may be repeated up to six credits. Students cannot count this credit toward the Freshman Composition requirement or toward the graduation requirement. Lecture, five hours per week.

**ENG 101 WRITING I.** (3)
A course in writing, designed to teach students to generate and develop ideas—through significant revision—in clear, effective written English. Course includes a review of grammar, usage, punctuation, and mechanics. Note: Credit not available by special examination, **Advanced Placement** excepted.

**ENG 102 WRITING II.** (3)
Study and practice in writing in response to written texts. Writing assignments include summary, synthesis, critique, argumentation. Instruction in library research methods and in the conventions of academic writing. Note: Credit not available by special examination, **Advanced Placement** excepted. Prereq: ENG 101 or equivalent.

**ENG 105 WRITING: AN ACCELERATED COURSE.** (3)
An intensive course in writing that combines the content of ENG 101 and ENG 102, emphasizing argumentation and library research. ENG 105 satisfies the University Writing Requirement for students who qualify for admission by ACT score and special examination. Note: Credit for this course and for fulfillment of the University Writing Requirement possible by CLEP examination.

**ENG 161 INTRODUCTION TO LITERATURE.** (3)
An analytical rather than historical approach to literature, intended to deepen the student's insight into the nature and purpose of literature and to develop literary taste and judgment. Designed especially for nonmajors, this course satisfies no requirements of the English major. (Offered in Community College System only.)

**ENG 203 BUSINESS WRITING.** (3)
Instruction and experience in writing for business, industry, and government. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement.

**ENG 204 TECHNICAL WRITING.** (3)
Instruction and experience in writing for science and technology. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement.

**ENG 205 INTERMEDIATE WRITING.** (3)
Instruction and experience in nonfictional writing. The emphasis is on clarity, conciseness, and effective form in abstracts, in case studies, and in literature reviews for special audiences. Assignments include research and oral presentations. Note: ENG 205 fulfills no requirements of the English major. Prereq: Completion of the University Writing requirement.

**ENG 207 BEGINNING WORKSHOP IN IMAGINATIVE WRITING (Subtitle required).** (3)
A beginning course in the craft of writing, teaching students how to read critically and how to revise work in progress. The students provide an audience for each other's work. Exercises involve practice in aspects of craft and promote experimentation with different forms, subjects, and approaches; outside reading provides models and inspiration. May be repeated under different subtitle to a maximum of six credits. Prereq: Consent of instructor.

**ENG 211 INTRODUCTION TO LINGUISTICS.** (3)
Introduction to the scientific study of human language. Emphasis on the fundamental principles of linguistic theory; applications of these principles in the investigation of grammatical structure, language change, regional and social dialect variation, and the acquisition of language by children. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Two college semesters or two high school years of a foreign language. (Same as LIN 211.)

**ENG 221 SURVEY OF ENGLISH LITERATURE I.** (3)
A survey of English literature from *Beowulf* through Milton. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

**ENG 222 SURVEY OF ENGLISH LITERATURE II.** (3)
A survey of English literature from Dryden to the present. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

**ENG 251 SURVEY OF AMERICAN LITERATURE I.** (3)
A survey of American literature from the Colonial Era to the Civil War. Emphasis upon the more important writers, with attention to their cultural backgrounds.

**ENG 252 SURVEY OF AMERICAN LITERATURE II.** (3)
A survey of American literature from the Civil War to the present. Emphasis upon the more important writers with attention to their cultural backgrounds.

**ENG 261 SURVEY OF WESTERN LITERATURE FROM THE GREEKS THROUGH THE RENAISSANCE.** (3)
A study of works by major Western authors from the Bible and ancient Greek literature through the Renaissance. Note: ENG 261 fulfills no requirement of the English major.

**ENG 262 SURVEY OF WESTERN LITERATURE FROM 1660 TO THE PRESENT.** (3)
A study of works by major Western authors from mid-17th century to the present. Note: ENG 262 fulfills no requirements of the English major.

**ENG 264 MAJOR BLACK WRITERS.** (3)
A cross-cultural and historical approach to written and oral works by major Black authors of Africa, the Caribbean and the United States. The course includes writers such as Chinua Achebe (Africa), Wilson Harris (Caribbean), and Toni Morrison (USA).

**ENG 270 THE OLD TESTAMENT AS LITERATURE.** (3)
A survey of the major types of Old Testament literature in English translation. While attention will be paid to historical backgrounds, the emphasis is on careful analysis of literary forms and techniques.

**ENG 271 THE NEW TESTAMENT AS LITERATURE.** (3)
A survey of the major types of New Testament literature in English translation. While attention will be paid to historical backgrounds, the emphasis is on careful analysis of literary forms and techniques.

**ENG 281 INTRODUCTION TO FILM.** (3)
An introduction to the study of the movies as a narrative art and a cultural document. Viewing of films outside of class is required. May not be taken concurrently with ENG 380.

**ENG 305 ADVANCED WRITING.** (3)
An intermediate-level course in the forms of nonfictional writing. Emphasis on the growth of a graceful, professional writing style. To enter course, students must demonstrate basic writing proficiency, an absence of problems requiring remedial instruction in writing. Prereq: Completion of freshman English requirement and consent of instructor.

**ENG 320 INTRODUCTION TO LITERARY STUDY.** (3)
A practical introduction to the theory and practice of literary study. Emphases on literary terms, genre distinctions, practice in writing about literature. Readings in prose fiction, poetry, and drama. Required for English majors.

**ENG 356 STUDIES IN BLACK AMERICAN LITERATURE.** (3)
An analytical-historical approach to the development of black American literature from Douglass and DuBois to Ellison, Baldwin, and Cleaver.

**ENG 360 THE SHORT STORY.** (3)
Intensive study of the short story as a literary form. Readings will be drawn from a wide variety of stories and may include works by American, British, and, in translation, continental authors.

**ENG 361 LITERARY TYPES (Subtitle required).** (3)
Studies in one or more of the following literary types: comedy, tragedy, satire, romance. Specific topics announced the preceding semester. May be repeated to a maximum of six credits with consent of English Department Director of Advising. May not be repeated under the same subtitle.

**ENG 363 SPECIAL TOPICS IN LITERATURE (Subtitle required).** (3)
Study of special topics in literature, in areas such as fiction, poetry, drama, and the relation of literature and intellectual movements. Topics announced the preceding semester. May be repeated under different subtitles to a maximum of nine credits.

**ENG 364 STUDIES IN CONTEMPORARY LITERATURE (Subtitle required).** (3)
Selected topics in the fiction and poetry of the English-speaking world since World War II. Topics announced the preceding semester. May be repeated under different subtitles for a maximum of six credits.

**ENG 369 STUDIES IN SOUTHERN AMERICAN LITERATURE.** (3)
Studies in southern American literature with special attention to such major figures as the Southern Regionalists: Faulkner, Wolfe, Warren, O'Connor, Welty, and Dickey.

**ENG 374 AMERICAN FOLKLORE.** (3)
An introductory survey of folklore using American materials. The use of this material in other forms. Experience in actual collecting and in the cataloging of materials.

**ENG 375 THE WOMAN WRITER.** (3)
Survey of the themes and forms of female literary expression. Includes works by writers from a range of ethnic backgrounds and supplements the literature with biographical and social context.

**ENG 378 TOPICS IN POPULAR CULTURE (Subtitle required).** (3)
Variable in content and context, this course may focus on any of several aspects of popular culture—genre, theory, history, contemporary and past expressions in popular narrative forms. Specific content announced the preceding semester. May be repeated up to six hours with permission of English Department Director of Advising. May not be repeated under the same subtitle.

**ENG 380 FILM CRITICISM.** (3)
A course in film criticism as the art of seeing movies; attention is given to the process of descriptive analysis and evaluation. Viewing of the films outside of class is required. May not be taken concurrently with ENG 281.

**ENG 381 HISTORY OF FILM I.** (3)
The history of film as art and industry from the invention of the moving picture to World War II. Emphasis on the artistic development of the silent film in America and Europe, the rise of the American studio system, and the emergence of the sound film in the 1930's. Viewing of films outside of class is required.

**ENG 382 HISTORY OF FILM II.** (3)
A history of film from World War II to the present. Emphasis on the artistic development of both the American film and various national cinemas (e.g., Italy, Sweden, France, Germany, Japan) during this period, with special consideration of the emergence of color and widescreen processes. Viewing of films outside of class is required.

**ENG 383 JAPANESE FILM.** (3)
Study of Japanese films as an expression of Japanese culture. Viewing of films outside of class required.

**ENG 390 UNDERGRADUATE SEMINAR (Subtitle required).** (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics vary from section to section and are announced the preceding semester. Enrollment limited to 15 students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**ENG 395 INDEPENDENT WORK.** (1-3)
For undergraduate majors in English with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. May be repeated to a maximum of six credits. Prereq: Major, standing of 3.0 in the department, and permission of the chairperson.

**ENG 401 SPECIAL TOPICS IN WRITING (Subtitle required).** (3)
Studies of special topics in writing, in areas such as technical writing, legal writing, cultural critique, and formal argument. Topics announced the preceding semester. May be repeated under different subtitles to a maximum of six credits. Prereq: Completion of the University Writing requirement and consent of instructor.

**ENG 405 EDITING ENGLISH PROSE.** (3)
For students with substantial training in writing. Instruction and practice in editing and revising skills; practice in evaluating, revising, and editing both the student's own writing and the prose works of others. Emphasis on developing critical intelligence and a sense of audience. Techniques of revision, verification of sources, preparation of manuscripts. Not for students with writing deficiencies. Prereq: ENG 305 or consent of instructor.

**ENG 407 INTERMEDIATE WORKSHOP IN IMAGINATIVE WRITING (Subtitle required).** (3)
Continued studies in the writer's craft, focusing on student work, but with increased emphasis on outside reading. May be repeated under a different subtitle to a maximum of six credits. Prereq: ENG 207 and consent of instructor.

**ENG 414G INTRODUCTION TO MODERN ENGLISH LINGUISTICS.** (3)
A study of phonemics, morphemics, and syntax. Special attention will be given in laboratory sessions to practical applications. Credit will not be given to students who already have credit for either ANT 215 or ENG/LIN 211. Prereq: Junior standing.

**ENG 418 HISTORY OF THE ENGLISH LANGUAGE.** (3)
A survey of the historical development of English from its Indo-European origins to the present. Includes an investigation of the principal changes which have affected English phonology, morphology, syntax, semantics, and vocabulary, and of the ways in which these changes are reflected in contemporary English usage; and an examination of the socio-historical factors that have shaped the evolution of the English language.

**ENG 420G STUDIES IN MEDIEVAL ENGLISH LITERATURE.** (3)
Studies in Old English and/or Middle English literature, such as Middle English lyric and romance, heroic poetry in Old and Middle English, Middle English alliterative poetry, religious poetry of the Middle Ages. Topics announced the preceding semester. Readings from some texts will be in Modern English translation.

**ENG 421G CHAUCER.** (3)
Extensive readings in the principal works of Chaucer, with particular attention to *The Canterbury Tales.*

**ENG 422G ENGLISH RENAISSANCE: 1500-1600.** (3)
Literature of the English Renaissance exclusive of the drama. Foreign sources of the English Renaissance. Major writers such as More, Ascham, Wyatt, Sidney, Spenser, Raleigh, and Marlowe.

**ENG 423G ENGLISH RENAISSANCE: 1600-1660.** (3)
Selected nondramatic works of such writers as Bacon, Donne, Ben Jonson, George Herbert, Izaak Walton, Herrick, Sir Thomas Browne, Vaughan, and Traherne.

**ENG 425G SHAKESPEARE SURVEY.** (3)
A study of ten to twelve of the major plays of Shakespeare, including comedies, tragedies, and histories and covering the important phases of his career.

**ENG 426G SHAKESPEARE STUDIES (Subtitle required).** (3)
Detailed study of a special topic in Shakespeare, such as Shakespeare's tragedies, early Shakespeare, Shakespeare's romantic comedies, Shakespeare and film. Topics announced the previous semester. May be repeated under different subtitles to a maximum of six credits.

**ENG 428G MILTON.** (3)
Extensive readings in Milton's poetry and prose.

**ENG 430G THE RESTORATION AND EARLY 18th CENTURY: 1660-1730.** (3)
A survey of the rise of Classicism with emphasis on the works of Dryden, Pope, Swift, Addison and Steele.

**ENG 431G THE LATER 18th CENTURY: 1730-1780.** (3)
A survey of the transition from Classicism to Romanticism with emphasis on the works of Boswell, Johnson, Gray, Goldsmith, and Cowper.

**ENG 435G THE ROMANTIC MOVEMENT: 1780-1815.** (3)
A study of the poetry and prose of the first half of the romantic movement. The emphasis is on the poetry of Blake, Wordsworth, and Coleridge.

**ENG 436G THE ROMANTIC MOVEMENT: 1815-1830.** (3)
A study of the poetry and prose of the second half of the romantic movement. The emphasis is on the poetry of Keats, Shelley, and Byron.

**ENG 438G VICTORIAN PERIOD: 1830-1860.** (3)
A survey of the major essayists and poets of the early Victorian period. Such authors as Mill, Carlyle, Browning, Tennyson, Arnold, and Newman will be considered both analytically and historically.

**ENG 439G VICTORIAN PERIOD: 1860-1900.** (3)
Survey of the major figures and movements of the late Victorian period: Ruskin, Pater, Hopkins; the pre-Raphaelites, Darwinism, Imperialism, Aestheticism, and Decadence.

**ENG 440G THE 18th CENTURY ENGLISH NOVEL.** (3)
A study of the English novel and its backgrounds from the beginnings through Jane Austen. Emphasis on the major figures of the 18th Century: Defoe, Richardson, Fielding, Smollett, and Sterne.

**ENG 441G THE 19th CENTURY ENGLISH NOVEL.** (3)
A study of the English novel and its backgrounds from Scott and the early Victorians through Hardy and the Age of Transition. Such novelists as the Brontes, Dickens, Thackeray, Trollope, George Eliot, Meredith, and Collins will be studied.

**ENG 442G THE 20th CENTURY ENGLISH NOVEL.** (3)
A study of the English novel and its backgrounds from 1900 to the present, with emphasis on the major figures of the pre-World War II era such as Conrad, Joyce, Lawrence, Forster, and Virginia Woolf.

**ENG 446G 20TH CENTURY BRITISH LITERATURE.** (3)
British literature of the 20th century, with particular attention to the poetry, to literary movements, and to critical theory.

**ENG 448G ENGLISH DRAMA (Subtitle required).** (3)
Studies in English drama, exclusive of Shakespeare, from the beginnings to the present. Organized historically, the course covers some major portion of the canon. Specific content announced the preceding semester. May be repeated up to six credits with consent of English Department Director of Advising. May not be repeated under same subtitle.

**ENG 451G STUDIES IN AMERICAN LITERATURE BEFORE 1860 (Subtitle required).** (3)
Studies of selected American writers in one or more of the following contexts: Colonial America, the Age of Reason and Revolution, Romanticism. May be repeated to a maximum of six credits with consent of English Department Director of Advising. May not be repeated under the same subtitle.

**ENG 452G STUDIES IN AMERICAN LITERATURE: 1860-1920.** (3)
Studies in American writing from the Civil War to 1920, with emphasis on major writers of fiction and poetry.

**ENG 453G STUDIES IN AMERICAN LITERATURE SINCE 1900.** (3)
Studies in American writing from the beginning of the century to the present, with emphasis on major writers of fiction, poetry, and drama.

**ENG 454G AMERICAN NOVEL BEFORE 1900.** (3)
An analytical and historical survey of the American novel from Charles Brockden Brown to the early Dreiser. Novelists such as Cooper, Hawthorne, Melville, Twain, Howells, James, and Crane will be studied.

**ENG 455G MODERN AMERICAN NOVEL.** (3)
An analytical and historical survey of the American novel from Wharton to Mailer. Novelists such as Dreiser, Anderson, Lewis, Fitzgerald, Hemingway, Faulkner, Steinbeck, Updike, and Bellow will be studied.

**ENG 466G MODERN DRAMA.** (3)
Continental, British, and American dramatic literature from Ibsen to the present. Authors such as the following are studied: Shaw, O'Neill, Brecht, and Beckett.

**ENG 472G SPECIAL TOPICS IN FOLKLORE (Subtitle required).** (3)
Using various approaches— theoretical, thematic, comparative, historiographic, ethnographic, or structural— the course examines special topics in folklore not covered in survey or genre courses. Specific content announced the preceding semester. May be repeated up to six hours with permission of English Department Director of Advising. May not be repeated under the same subtitle.

**ENG 473G SURVEY OF WORLD FOLKLORE.** (3)
A survey on a worldwide scope of types of folklore. Emphasis upon folklore as a cultural phenomenon in its own right and upon its relations to literary types. The development of the science of folklore.

**ENG 478G APPALACHIAN FOLKLORE.** (3)
The course, by discussions and lectures, provides definitions of the various genres of folklore comprising the traditional humanistic threads of the Appalachian sociocultural fabric, with emphasis upon the place of folklore in Appalachians' lives.

**ENG 480G SPECIAL STUDIES IN FILM (Subtitle required).** (3)
Study of special topics in film, such as directors, genres, film and literature, film theories, film movements. Viewing of films outside of class is required. Topics announced the preceding semester. May be repeated to a maximum of six credits with consent of instructor. Prereq: ENG 281 or 380 or consent of instructor.

**ENG 490G TOPICS OF GENDER IN LITERARY STUDIES (Subtitle required).** (3)
Variable in content and context, this course focuses on any of several aspects of gender in literary studies, such as gender and genre, gender issues in a particular literary period, black women writers, feminist literary theory. May be repeated under different subtitles to a maximum of six hours.

**ENG 507 ADVANCED WORKSHOP IN IMAGINATIVE WRITING (Subtitle required).** (3)
For the student who has shown marked talent and commitment, this course provides a more rigorous workshop among peers and includes additional attention to outside reading. Each student will produce a chapbook of poems or stories. May be repeated with the same subtitle to a maximum of six credits. Prereq: ENG 207 and ENG 407, or the equivalent, and consent of the instructor.

**ENG 509 COMPOSITION FOR TEACHERS.** (3)
The basic studies helpful to teachers of composition. The teaching of grammar, punctuation, usage, etc., and of theme planning, correction, and revision. Students are required to do quite a bit of writing.

**ENG 510 AMERICAN ENGLISH.** (3)
The varieties of modern American English: regional and social dialects, ethnic varieties, creoles, and argots. History and methods of American dialect study. Prereq: ENG/LIN 211 or ENG 414G or ANT 215 or the equivalent; or consent of instructor.

**ENG 512 MODERN ENGLISH GRAMMAR.** (3)
Contemporary approaches to grammatical analysis; the interrelationships of phonology, morphology, and syntax. Prereq: ENG/LIN 211 or ENG 414G or ANT 215 or the equivalent; or consent of instructor.

**ENG 513 TEACHING ENGLISH AS A SECOND LANGUAGE.** (3)
The course will examine the current theories and methods of teaching English as a second language. The course will include (1) language learning theory as it relates to other disciplines; (2) methods and techniques of contrastive analysis. Prereq: One course in linguistics or consent of instructor. (Same as EDC 513.)

**ENG 514 TESL MATERIALS AND METHODS.** (3)
An extension of ENG/EDC 513, this course will include examination and evaluation of published materials designed for teaching English to speakers of other languages. Students will create individualized teaching materials and gain practical experience in applying the methods and using their own materials. Prereq: ENG/EDC 513 or consent of instructor. (Same as EDC 514.)

**ENG 515 PHONOLOGICAL ANALYSIS.** (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Includes fieldwork on the phonology of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ANT/LIN 515.)

**ENG 516 GRAMMATICAL ANALYSIS.** (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Includes fieldwork on the morphology and syntax of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ANT/LIN 516.)

**ENG 519 INTRODUCTION TO OLD ENGLISH.** (3)
An introduction to Old English language and literature.

**ENG 562 COMPARATIVE LITERATURE: 17TH THROUGH 19TH CENTURY.** (3)
A study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, from mid-17th century to end of 19th century. (Same as CLT 562.)

**ENG 563 COMPARATIVE LITERATURE: 20TH CENTURY.** (3)
Masterpieces and examples of 20th century Western World literature, in English translation, with emphasis on the emergence of new forms and techniques invented to express the complexity of modern life. The course will study novels, poems, and plays in their traditional development and in experimental and divergent forms. (Same as CLT 563.)

**ENG 569 HISTORY OF LITERARY CRITICISM II.** (3)
The theory and practice of modern literary criticism such as New Criticism, Formalism, structuralism, reader response, Marxism, deconstruction, psychoanalysis, and feminist criticism.

**ENG 570 SELECTED TOPICS FOR ADVANCED STUDIES IN LITERATURE (Subtitle required).** (3)
Study of special topics that cut across the normal divisions of genre or periods, such as the relations of literature to other disciplines; metaphor and symbolism; interpretative theory. May be repeated to a maximum of six credits. Prereq: Junior standing or consent of instructor.

**ENG 572 STUDIES IN ENGLISH FOR TEACHERS (Subtitle required).** (3)
Specialized studies designed to increase the teacher's knowledge of subject matter and to enlarge his understanding of new developments and approaches to the teaching of English. May be repeated to a maximum of six credits.

**ENG 581 AESTHETICS OF FILM.** (3)
An examination of theories of film. Emphasis on the establishment of criteria for the aesthetic response to film and the visual image. Viewing of films outside of class is required. Prereq: Another ENG film course or consent of instructor.

**PROSEMINARS:** The purpose of the proseminar courses (600 level) is to impart through lectures and discussion both the facts of literary history and the techniques of literary analysis. They are, therefore, designed to go beyond the mere information level to techniques of contemporary literary criticism and scholarship.

**ENG 600 BIBLIOGRAPHY AND METHODS OF RESEARCH.** (3)
An introduction to descriptive and enumerative bibliography, textual criticism, and historical scholarship.

**ENG 607 GRADUATE WRITING WORKSHOP (Subtitle required).** (3)
A course for experienced writers who have some knowledge of contemporary American literature. Equal emphasis on students' original work and outside reading. Each student will produce a chapbook of poems or stories and write a short introduction to it. May be repeated with the same subtitle to a maximum of six credits. Prereq: Consent of instructor.

**ENG 609 COMPOSITION FOR TEACHERS.** (3)
A course in the theory and practice of teaching English composition at the college level. Required of first-year teaching assistants in the Department of English, the course is structured to match the ordering of English 101 so that the practical work of college writing and the theoretical considerations of English 609 will be mutually reinforcing.

**ENG 610 STUDIES IN RHETORIC.** (3)
This course introduces theories of rhetoric with readings drawn from major theoreticians and rhetoricians; applies theory to the practice of teaching college writing, with special emphasis on argumentation, the subject of English 102; and provides an opportunity for teaching assistants to get help from the teacher and from their peers in responding to and evaluating students' written work. This course, required of second semester teaching assistants in the Department of English, continues the work of English 609. Prereq: ENG 609 or equivalent.

**ENG 617 STUDIES IN LINGUISTICS (Subtitle required).** (3)
A comprehensive investigation of some designated topic in general or applied linguistics. May be repeated to a maximum of nine credits under different subtitles. Prereq: An introductory course in linguistics (ANT 215, ENG/LIN 211, or ENG 414G) or permission of instructor. (Same as LIN 617).

**ENG 618 HISTORY OF THE ENGLISH LANGUAGE.** (3)
An intensive study of the change of English from a synthetic to an analytic language, from its origin in Indo-European to its current stage of development. Emphasis is on changes in phonology, morphology, syntax, and semantics, from Old to Early-Modern English.

**ENG 619 BEOWULF.** (3)
Translation and study of *Beowulf*. ENG 518 or ENG 519 recommended as background courses.

**ENG 620 STUDIES IN MIDDLE ENGLISH LITERATURE.** (3)
A study in depth of selected writers and movements.

**ENG 621 STUDIES IN CHAUCER.** (3)
A study in depth of selected works of Chaucer, especially *Troilus*, in relation to aspects of the medieval literary tradition.

**ENG 622 STUDIES IN ENGLISH LITERATURE: 1500-1600.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 623 STUDIES IN ENGLISH LITERATURE: 1600-1660.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 625 STUDIES IN RENAISSANCE DRAMA EXCLUSIVE OF SHAKESPEARE.** (3)
A study in depth of selected writers.

**ENG 626 STUDIES IN SHAKESPEARE.** (3)
A reading of Shakespeare's work and an intensive study of a selection representative of the full range of his dramatic and nondramatic writing. Extensive reading in Shakespeare scholarship and criticism. Prereq: One of the following—ENG 425G, 426G, 427G, or equivalent.

**ENG 628 STUDIES IN MILTON.** (3)
A study of all of Milton's poetry and of his more important prose; readings from contemporary thinkers; studies in thought currents of the time and Milton's relation to them.

**ENG 630 STUDIES IN ENGLISH LITERATURE: 1660-1720.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 631 STUDIES IN ENGLISH LITERATURE: 1720-1780.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 635 STUDIES IN LITERATURE: 1780-1815.** (3)
A study in depth of selected writers and movements.

**ENG 636 STUDIES IN LITERATURE: 1815-1830.** (3)
A study in depth of selected writers and movements.

**ENG 638 STUDIES IN ENGLISH LITERATURE: 1830-1860.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 639 STUDIES IN ENGLISH LITERATURE: 1860-1900.** (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

**ENG 640 STUDIES IN THE 19th CENTURY BRITISH NOVEL.** (3)
A study in depth of selected writers. Prereq: Graduate standing.

**ENG 642 STUDIES IN MODERN BRITISH LITERATURE.** (3)
Selected writers, works, and movements in the modern period with concentration on the period from 1890 to 1945.

**ENG 643 STUDIES IN MODERN BRITISH AND AMERICAN POETRY.** (3)
Selected poets from England and America, with a major concentration on the period 1890-1945.

**ENG 651 STUDIES IN AMERICAN LITERATURE BEFORE 1860.** (3)
A study in depth of selected writers and movements.

**ENG 652 STUDIES IN AMERICAN LITERATURE: 1860-1900.** (3)
A study in depth of selected writers and movements.

**ENG 653 STUDIES IN AMERICAN LITERATURE SINCE 1900.** (3)
A study in depth of selected writers and movements.

**ENG 656 BLACK AMERICAN LITERATURE.** (3)
An in-depth study of black American literature, with concentration on major texts by major black writers.

**ENG 660 MODERN CRITICAL THEORY.** (3)
Detailed examination of one or another topic in contemporary theory of interpretation, such as literature and analytical philosophy, phenomenology and literature, structuralism, Marxism, psychoanalysis.

**ENG 673 STUDIES IN FOLKLORE.** (3)
A study in depth of selected topics such as the development of literary genres out of oral folklore. Prereq: ENG 374 or consent of instructor.

**ENG 681 STUDIES IN FILM.** (3)
Comprehensive study of the history, theory, and criticism of film, with concentration on a series of major American and foreign films. Viewing of films outside of class is required.

**ENG 682 STUDIES IN FICTION.** (3)
A study in depth of selected types of fiction.

**ENG 683 STUDIES IN DRAMA.** (3)
A study in depth of selected types of drama.

**ENG 684 STUDIES IN POETRY.** (3)
A study in depth of selected types of poetry. May be repeated to a maximum of six credits.

**ENG 690 STUDIES IN LITERATURE AND GENDER (Subtitle required).** (3)
This course focuses on gender as a primary category for literary analysis. Topics will vary, from a group of authors, an historical period or an aesthetic movement, to a genre, a theme, or an aspect of literary theory. May be repeated under different subtitles to a maximum of six credits.

**ENG 720 SEMINAR IN MEDIEVAL LITERATURE.** (3)
Recent topics: medieval fiction; Chaucer and the Gothic mind. May be repeated to a maximum of six credits.

**ENG 722 SEMINAR IN 16th CENTURY LITERATURE.** (3)
Recent topics. Spenser; Elizabethan drama. May be repeated to a maximum of six credits.

**ENG 723 SEMINAR IN 17th CENTURY LITERATURE.** (3)
Recent topics: Donne; Herbert; Milton. May be repeated to a maximum of six credits.

**ENG 726 SEMINAR IN SHAKESPEARE.** (3)
Seminar in Shakespeare. May be repeated to a maximum of six credits.

**ENG 730 SEMINAR IN 18th CENTURY LITERATURE.** (3)
Recent topics: neoclassic satire. May be repeated to a maximum of six credits.

**ENG 735 SEMINAR IN ROMANTIC LITERATURE.** (3)
Recent topics: Keats; Wordsworth. May be repeated to a maximum of six credits.

**ENG 738 SEMINAR IN VICTORIAN LITERATURE.** (3)
Seminar in Victorian literature. May be repeated to a maximum of six credits.

**ENG 740 SEMINAR IN 20th CENTURY BRITISH LITERATURE.** (3)
Seminar in 20th century British literature. May be repeated to a maximum of six credits.

**ENG 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ENG 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ENG 750 SEMINAR IN COLONIAL LITERATURE.** (3)
Seminar in Colonial Literature; may be repeated to a maximum of six credits.

**ENG 751 SEMINAR IN AMERICAN LITERATURE: 1800-1860.** (3)
Seminar in American literature 1800-1860. Recent topics: Emerson and Melville; Hawthorne. May be repeated to a maximum of six credits.

**ENG 752 SEMINAR IN AMERICAN LITERATURE: 1860-1900.** (3)
Seminar in American literature 1860-1900. Recent topics: Whitman and Dickinson. May be repeated to a maximum of six credits.

**ENG 753 SEMINAR IN AMERICAN LITERATURE SINCE 1900.** (3)
Seminar in American literature since 1900. Recent topics: Faulkner, Wolfe, and Warren. May be repeated to a maximum of six credits.

**ENG 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ENG 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ENG 771 SEMINAR IN SPECIAL TOPICS.** (3)
Seminar in special topics; includes genres and subject matters such as symbolism which cover more than one period of literature. Recent topics: symbolism and allegory. May be repeated to a maximum of six credits.

**ENG 780 DIRECTED STUDIES.** (1-6)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated to a maximum of nine credits. Permission of chairperson required.

**ENG 781 SEMINAR IN FILM (Subtitle required).** (3)
Seminar in special topics in film, such as directors, genres, historical periods, film and literature, film theories, and film movements. Viewing of films outside of class is required. May be repeated under different subtitle to a maximum of six credits. Prereq: ENG 681 or consent of instructor.

## ENS Environmental Studies

**#ENS 200 INTRODUCTION TO ENVIRONMENTAL STUDIES.** (3)
A broad-ranging multidisciplinary introduction to current environmental issues and problem solving presented through a series of case studies. Case studies incorporate contemporary environmental themes including industrialization, resource use, and pollution; changing land use patterns; global warming and deforestation; biodiversity; political regulation; economic resources; cultural attitudes toward nature. Each case study will present environmental issues as scientific problems with social, political, philosophical, and economic causes and consequences. Emphasis is placed on understanding and combining different approaches to environmental problems and on proposing public policy solutions.

**#ENS 300 SPECIAL TOPICS (Subtitle required).** (1-4)
Special topics in environmental studies. This course permits the offering of special topics in environmental studies in order to take advantage of faculty specialties. Course topic must be approved by the Environmental Studies Program Director. Prereq: Variable, when topic is identified.

**#ENS 395 INDEPENDENT WORK.** (1-4)
Under special conditions selected students may investigate specific environmental issues and problems. The instructor and the student will agree on a formal semester plan/learning contract, which will be filed with the Environmental Studies Program Director and will include weekly reports to the instructor. Prereq: Environmental Studies minor, 3.0 G.P.A., consent of instructor.

**#ENS 400 SENIOR SEMINAR (Subtitle required).** (3)
This course will draw on your interdisciplinary understanding of environmental issues and your problem-solving capacities developed while fulfilling Environmental Studies Minor requirements. It is a participatory capstone seminar designed to utilize and test your critical ability for independent thinking organized around specific environmental issues. Independent library work and writing assignments will be required in order to prepare for weekly, interactive topical seminar meetings. Group projects will culminate in individual term papers/projects on different aspects of the environmental issues under discussion. Specific topics will vary. Prereq: ENS 200 and 12 hours of course work from approved Environmental Studies courses (or instructor's consent).

## ENT Entomology

***ENT 110 INSECT BIOLOGY.** (3)
Overview of the biology of insects. Emphasizes how this enormously abundant and important group of animals has resolved the basic challenges of survival and reproduction. Principles of physiology, behavior, ecology, and evolution are introduced using insects as examples. The roles of both beneficial and detrimental insects will be discussed.

**ENT 300 GENERAL ENTOMOLOGY.** (3)
Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: One course in introductory biology. (Same as BIO 300.)

**ENT 310 INSECT PESTS OF FIELD CROPS.** (3)
Identification, life histories and control of insects attacking field crops, especially those of importance in Kentucky. The damage that these insects cause, the reasons for their abundance, and alternatives in control practices will also be emphasized. Lecture, two hours per week; laboratory, two hours per week.

**ENT 320 HORTICULTURAL ENTOMOLOGY.** (3)
A detailed coverage of the insects and mites attacking turf, ornamentals, greenhouse plantings, vegetables and fruits, with emphasis on field recognition of the pests and their damage. Lecture, two hours per week; laboratory, two hours per week.

**ENT 340 LIVESTOCK ENTOMOLOGY.** (2)
Biology and behavior of insects and other pests attacking livestock, poultry, pets and wildlife. Current control methods are discussed. For students interested in livestock production, farm management, dairy science, poultry science, and preveterinary medicine, as well as general agriculture.

**ENT 360 GENETICS.** (3)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, molecular, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as AGR/ASC 360.)

**ENT 395 INDEPENDENT WORK.** (2-3)
Special problems for individual students who are capable of pursuing independent investigations in the various areas of entomology. May be repeated to a maximum of six credits. Prereq: ENT 300.

**ENT 399 FIELD BASED/COMMUNITY BASED EDUCATION.** (1-6)
Field-based or community-based experience in entomology under supervision of a faculty member. Pass/Fail only. Prereq: Permission of faculty member and department chairperson and completion of a departmental learning agreement before registration.

**ENT 402 FOREST ENTOMOLOGY.** (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as FOR 402.)

**ENT 460 INTRODUCTION TO MOLECULAR GENETICS.** (2)
Molecular genetics is the study of the biochemical basis of heredity and focuses on the structure and expression of DNA at the molecular and cellular level. The course will provide a detailed understanding of the biochemical events involved in replication, prokaryotic and eukaryotic transcription, and translation of DNA, as well as RNA processing, recombination, and the theoretical underpinnings of genetic engineering. Prereq: AGR 360 or BIO 404G or consent of instructor. (Same as AGR 460.)

**ENT 461 INTRODUCTION TO POPULATION GENETICS.** (2)
This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and micro-organisms), but some theoretical derivations will also be introduced. Prereq: AGR 360 (or equivalent) and one course in probability/statistics. (Same as AGR/BIO/FOR 461.)

**ENT 530 INTEGRATED PEST MANAGEMENT.** (3)
Principles of insect damage, populations and distributions. Various types of natural and applied control, including problems of insecticide toxicity, resistance and residues. Prereq: ENT 300.

**ENT 561 MEDICAL ENTOMOLOGY.** (4)
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Given alternate years. Prereq: one year of biology. (Same as BIO 561.)

**ENT 562 EXTERNAL MORPHOLOGY OF INSECTS.** (4)
A study of the external structure of insects, including function and variation of form. Prereq: ENT 300 or equivalent. (Same as BIO 562.)

**ENT 563 PARASITOLOGY.** (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures and life histories. Techniques for host examination and preparation of material for study. Prereq: BIO 150, 151, 152, 153 or consent of instructor. (Same as BIO 563.)

**ENT 564 INSECT TAXONOMY.** (4)
A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: Consent of instructor. (Same as BIO 564.)

**ENT 568 INSECT BEHAVIOR.** (3)
The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Prereq: One year of biology. (Same as BIO 568.)

**ENT 608 BEHAVIORAL ECOLOGY.** (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as BIO/FOR 608.)

**ENT 609 COMMUNITY AND ECOSYSTEM ECOLOGY.** (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as BIO/FOR 609.

**ENT 610 POPULATION ECOLOGY.** (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor. (Same as BIO/FOR 610.)

**ENT 625 INSECT-PLANT RELATIONSHIPS.** (3)
This course examines the natural history, ecology, and evolution of insect/plant relationships. Topics include mechanisms and theory of plant defense, behavioral and physiological adaptations of herbivorous insects, pollination biology, multitrophic-level interactions, causes of insect outbreaks, and applications to managed ecosystems. Critical reading and discussion of current literature is emphasized. Prereq: Two years of college-level biology. (Same as BIO 625.)

**ENT 626 INSECT PATHOLOGY.** (3)
Principles of insect pathology related to the etiology, pathogenesis, symptopathology, gross pathology, histopathology, and epizootiology of insect diseases with emphasis on infectious diseases caused by occluded viruses, bacteria, fungi, and protozoans. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

**ENT 635 INSECT PHYSIOLOGY AND INTERNAL MORPHOLOGY.** (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, neurophysiology, endocrinology and digestion. Internal morphology will be studied as it relates to function. Lecture, three hours; laboratory, two hours. Prereq: Consent of instructor. (Same as BIO 635.)

**ENT 660 IMMATURE INSECTS.** (3)
Bionomics, structure and classification of immature stages of insects; practice in their identification. Lecture, one hour; laboratory, six hours. Prereq: BIO 570 or ENT 564, or consent of instructor.

**ENT 665 INSECT ECOLOGY.** (3)
The biotic and physical factors influencing the distribution and abundance of insects and insect populations. Prereq: Consent of instructor. (Same as BIO 665.)

**ENT 670 EXPERIMENTAL METHODS IN ENTOMOLOGY—FIELD.** (2)
The principles and techniques of field entomological research with emphasis on problem selection and the collection, evaluation, and presentation of data. Lecture, two hours; laboratory, four hours. Taught first half of the semester.

**ENT 671 EXPERIMENTAL METHODS IN ENTOMOLOGY—LABORATORY.** (2)
The principles and techniques of instrumentation in laboratory entomological research with evaluation and presentation of data. Two class hours; four laboratory hours. Taught second half of the semester.

**ENT 680 BIOLOGICAL CONTROL.** (3)
Principles related to the use of arthropods to suppress populations of arthropod pests and weeds. Includes historical perspective, ecological relationships, and contemporary issues related to the conservation and manipulation of arthropod predators, parasitoids, and herbivores. Prereq: ENT 300 or equivalent.

**ENT 695 SPECIAL TOPICS IN ENTOMOLOGY (Subtitle required).** (3)
Special topical or experimental courses in entomology for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Entomology. A particular title may be offered twice at most under ENT 695. May be repeated to a maximum of six credits. Students may not repeat under the same subtitle. Prereq: Will be set by instructor.

**ENT 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ENT 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ENT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ENT 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ENT 770 ENTOMOLOGICAL SEMINAR.** (1)
Discussion of current research problems in entomology. May be repeated to a maximum of six hours.

**ENT 780 SPECIAL PROBLEMS IN ENTOMOLOGY AND ACAROLOGY.** (2-3)
Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**ENT 790 RESEARCH IN ENTOMOLOGY AND ACAROLOGY.** (1-6)
Independent research in entomology or acarology. May be repeated to a maximum of 12 hours. Prereq: Consent of instructor.

## EPE Education—Educational Policy Studies and Evaluation

**EPE 301 EDUCATION IN AMERICAN CULTURE.** (3)
Critical examination of contending views, past and present, regarding the nature and role of educational institutions in American society as well as proposed purposes and policies for schools and other educational agencies.

**EPE 317 HISTORY OF EDUCATION.** (3)
A study of the historical foundations of American education.

**EPE 454 CULTURE, EDUCATION AND TEACHING ABROAD.** (2-4)
Introduction to the social, political, economic, and educational institutions of another country in preparation for student teaching in that country. The process and problems of adjusting to life in another culture will be included as well as instruction in the language of the host country as needed. Faculty from other departments in the University will be used as well as informants from the country involved. Lecture, three hours per week; laboratory, two hours per week for language practice. Prereq: Admission to a teacher education program. (Same as EDC 454.)

**EPE 525 SPECIAL TOPICS SEMINAR IN EDUCATIONAL POLICY STUDIES AND EVALUATION (Subtitle required).** (3)
Examination of selected topics in educational policy studies and evaluation. May be repeated to a maximum of six credits but no more than three may be earned under the same subtitle. Prereq: Consent of instructor.

**EPE 532 RACE AND ETHNIC RELATIONS.** (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: Six hours of social science or consent of instructor. (Same as SOC 532.)

**EPE 555 COMPARATIVE EDUCATION.** (3)
Analytic and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs in non-Western countries. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations. Prereq: Junior, senior or graduate status, or consent of instructor.

**EPE 570 GATHERING, ANALYZING, AND USING EDUCATIONAL DATA.** (3)
An introductory course in the analysis of educational and evaluation data. An emphasis on exploratory data analysis and interpretation of results in the broad contexts of education and evaluation. Lecture, two hours; laboratory, two hours per week. Prereq: Undergraduates must have the consent of the instructor.

**EPE 601 PROSEMINAR.** (1)
Introductory survey of the bibliographic parameters and research approaches to educational policy studies and evaluation. Graduate faculty resources and typical research problems are introduced. Emphasis upon significance and importance of thesis writing and dissertation in graduate studies. Required, first semester of study, for all degree students in the department. Prereq: Graduate standing or consent of instructor.

**EPE 602 SOCIAL POLICY ISSUES AND EDUCATION.** (3)
Study of philosophical, historical, and sociological dimensions of contemporary educational policy issues. Topical policy controversies, such as equality of educational opportunity, tuition tax credits, and religious education, will be examined.

**EPE 603 EDUCATIONAL POLICY ANALYSIS: AN INTRODUCTION.** (3)
Examination of the basic aspects of educational policy analysis. Emphasis upon major issues endemic to the pursuit of rational policy formulation in democratic politics. Prereq: Graduate standing or consent of instructor.

**EPE 620 TOPICS AND METHODS OF EVALUATION.** (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EDP 620/SOC 622.)

**EPE 621 ADVANCED TOPICS AND METHODS OF EVALUATION.** (3)
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE 620/SOC 622; and consent of instructor. (Same as ANT/EDP 621.)

**EPE 628 ETHICS AND EDUCATIONAL DECISION MAKING.** (3)
Examination of ethical theories upon which educational evaluations are based and upon which they become the basis for educational policies. Theories considered include classical and rule utilitarianism, Rawlsian social justice, behavioristic, critical, and hermeneutic theories of value. Prereq: EPE 603 or consent of instructor.

**EPE 629 FUTURISTICS AND EDUCATIONAL POLICY.** (3)
Historical, literary, and scientific prognostications of education in the future. Primary emphasis: methodologies of forecasting educational futures, using simulations, statistical projections, scenario inventions, and systems planning. Implications for educational planning and curriculum development will be examined. Prereq: Graduate level standing or consent of instructor.

**EPE 640 PHILOSOPHY OF EDUCATION.** (3)
The course is designed to enhance the professional educator's competence in analyzing and evaluating educational policies and programs. Theoretical frameworks, philosophical methods, and current educational debates are examined. May be repeated once to a maximum of six credits. Prereq: Twelve semester hours in education or permission of instructor.

**EPE 646 ANALYSIS OF THINKING.** (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EPE 640, or consent of instructor.

**EPE 651 HISTORY OF EDUCATION IN THE UNITED STATES.** (3)
A history of the growth and development of education in the United States from earliest colonial times to the present, including recent movements and trends.

**EPE 652 HISTORY OF EDUCATIONAL THOUGHT.** (3)
Description and critical examination of the core ideas of leading educational theorists in the history of Western culture. Emphasis upon the societal and cultural conditions in which the ideas emerged, and the relevance of these ideas to contemporary educational policy concerns.

**EPE 653 HISTORY OF HIGHER EDUCATION.** (3)
Social and institutional history of higher education which will include selected topics in European culture and education and which will emphasize the development of the American college and university.

**EPE 661 SOCIOLOGY OF EDUCATION.** (3)
A study of schooling and education using basic analytic paradigms of sociology. Emphasis on schools as formal organizations and education in a changing, technologically oriented and stratified society. Prereq: SOC 101 or equivalent. (Same as SOC 661.)

**EPE 663 FIELD STUDIES IN EDUCATIONAL INSTITUTIONS.** (3)
Field research in an educational setting. Questions of theory, method, and application examined. Students plan and implement a study under faculty supervision. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**EPE 665 EDUCATION AND CULTURE.** (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

**EPE 667 EDUCATION AND GENDER.** (3)
The course examines the relationships between gender and education in U.S. society. The focus will be on the formation and enactment of gender within social and educational institutions. Using a variety of source materials and theories, we will address the following questions. How and what do educational institutions teach about gender? And how do females and males respond to these learning contexts? In what ways are social class, race and ethnicity important to engendering our lives? How does schooling contribute to the differential experiences of women and men in their transitions to adult work in the domestic and waged labor forces? How can education contribute to societal changes in sex equity?

**EPE 670 POLICY ISSUES IN HIGHER EDUCATION.** (3)
A survey of modern tendencies in higher education; scope and development, objectives, organization, administration, curricula, finance, faculty and student personnel. Designed primarily for prospective college administrators, teachers, and registrars.

**EPE 672 COLLEGE TEACHING AND LEARNING.** (3)
A study of all phases of instruction at the college level. The course will include methods and principles of teaching, utilization of materials in teaching, a consideration of the teaching-learning process as it relates to the individual student, and the evaluation of student progress. A comprehensive course for prospective college teachers.

**EPE 674 THEORIES OF STUDENT DEVELOPMENT.** (3)
A study of college student behavior, relationship of student personnel to total college program, organization and administration, evaluation, and research of college student personnel.

**EPE 676 ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION.** (3)
Purposes and scope of higher education, organization, general administration, faculty administration, inter-institutional cooperation, allocation of financial resources, state systems of higher education.

**EPE 678 ECONOMICS OF HIGHER EDUCATION.** (3)
This course addresses issues of equity and efficiency by analyzing 1) how students, faculty and institutions are influenced by markets and incentives, 2) the economic impact of higher education on students and society, and 3) the financial management of institutions.

**EPE 679 MULTIPLE MEASURES IN EDUCATION AND EVALUATION.** (3)
Quantitative techniques for dealing with multiple measures of persons, programs, or products. Appropriate techniques for pretest-posttest designs, multiple outcome measures, reliability, time series and other situations where there are multiple measurements. Prereq: EPE 621 or its equivalent.

**EPE 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**EPE 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**EPE 763 ADVANCED FIELD STUDIES.** (3)
This course continues an exploration of qualitative research methods in the study of education. It focuses on advanced data collection techniques and particularly on methods of data analysis, representation and writing. The course revolves around an experiential core of individual student research products. May be repeated to a maximum of six credits. Prereq: EPE 663, other introductory qualitative research methods courses or instructor's permission.

**EPE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**EPE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**EPE 773 SEMINAR IN EDUCATIONAL POLICY STUDIES AND EVALUATION.** (1-3)
Examination of selected problems in educational policy studies and evaluation. May be repeated to nine credits but no more than three credits may be earned under the same title. Prereq: Consent of instructor.

**EPE 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY.** (3)
Emphasis upon implications of major trends in national historiography for needed research in education in Kentucky. Prereq: A graduate-level course in the history of education or consent of instructor.

**EPE 785 INDEPENDENT STUDIES IN EDUCATIONAL POLICY STUDIES AND EVALUATION.** (3)
Independent study experience for advanced graduate students to investigate special problems and conduct research in educational policy studies and evaluation. Prereq: Permission of department chairperson required.

**EPE 790 INTERNSHIP IN EDUCATIONAL POLICY STUDIES AND EVALUATION.** (6)
Formal assignment to an evaluation and/or policy analysis project in an appropriate educational setting. Student's work directed and evaluated by both departmental faculty and on-site supervisor. Laboratory, 20 hours per week. May be repeated to a maximum of 12 credits. Prereq: 12 hours of graduate course work in the department and permission of the director of graduate studies.

**EPE 798 SEMINAR IN HIGHER EDUCATION.** (3)
A critical study of selected problems in higher education. May be repeated to a maximum of nine credits but no more than three credits may be earned under the same subtitle. Prereq: Consent of instructor.

## ES Environmental Systems

**ES 600 ENVIRONMENTAL SYSTEMS SEMINAR.** (1)
A series of presentations by experts in the field on environmental systems topics including topics from the fields of law, economics, social sciences, medicine, biology, engineering and physical sciences. May be repeated to a maximum of two credits.

**ES 610 ENGINEERING AND PHYSICAL SCIENCES IN ENVIRONMENTAL SYSTEMS.** (3)
Earth systems: environmental impacts of natural and human processes; the role of water systems on the earth including surface water systems, groundwater systems, and water quality and contamination systems; the role of atmospheric systems on earth including the nature and source of air pollutants, meteorological principles, radiation balance, climatology and air pollution, and air pollution control methodology; and processes and principles involved in waste producing organizations. Prereq: Freshman chemistry.

**ES 620 NATURAL, BIOLOGICAL AND MEDICAL SCIENCES IN ENVIRONMENTAL SYSTEMS.** (3)
A survey course for students outside the biological and medical sciences. Concepts in environmental systems, toxicology, ecology and the environment, ecotoxicology and environmental health. Prereq: A background in physical sciences or introductory biology and chemistry.

**ES 630 LEGAL, SOCIAL AND ECONOMIC SCIENCES IN ENVIRONMENTAL SYSTEMS.** (3)
Jurisprudential history, ethics and rule of law, environmental economics, history of science, governmental structures, process for development and enforcement of standards, social/political implications of environmental systems, regulatory schemes for environmental control.

## EXP Experiential Education

**EXP 396 EXPERIENTIAL EDUCATION.** (1-12)
A community-based or field-based learning experience under the supervision of a faculty member. May be repeated to a maximum of 30 credits. Pass/fail with departmental permission required for letter grade. Prereq: Completion of departmental learning agreement and filing of the agreement in OEE. Consent of major department chairperson and instructor required.

## FA Fine Arts

**FA 301 PRINCIPLES AND PRACTICES OF ARTS ADMINISTRATION.** (3)
Survey of techniques and practices used in the administration of performing and visual art facilities and programs. Prereq: Fine Arts majors with sophomore standing; others with the consent of the instructor.

**FA 401 SEMINAR IN ARTS ADMINISTRATION.** (3)
Continuation of FA 301. Class focuses upon the principles and theories of arts administration with emphasis on management research, market analyses and audience education theories. Prereq: FA 301 or consent of instructor.

**FA 402 TOPICS IN ARTS ADMINISTRATION (Subtitle required).** (1-3)
A seminar designed to cover specific topics in arts administration, such as "arts and the law," "grantwriting for the arts," "fundraising and the arts." May be repeated to a maximum of 12 credits when identified by different subtitles. Prereq: FA 301 or FA 401.

**FA 499 INTERNSHIP IN ARTS ADMINISTRATION.** (1-9)
An internship with university, community or regional arts organizations, providing practical work experience related to arts administration. Internship conducted under supervision of a faculty member. Student must file learning contract with college. May be repeated to a maximum of nine credits. Prereq: Junior standing; FA 301 and FA 401.

## FAM Family Studies

**†FAM 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT.**

**FAM 250 CONSUMER ISSUES.** (3)
A study of consumer issues, rights and responsibilities. Examination of how individual and societal decisions affect quality of life.

**FAM 251 PERSONAL AND FAMILY FINANCE.** (3)
Management of personal and family financial resources throughout the lifespan. A study of individual and family finances as related to planning, credit, savings, investment, insurance, taxes, housing costs, transportation costs, retirement and estate planning.

**FAM 252 THE INDIVIDUAL, MARRIAGE AND FAMILY.** (3)
Consideration of the dynamics of intimate relationships with emphasis on the individual's personal development and expectations regarding intimacy, marriage, and family.

**FAM 253 HUMAN SEXUALITY: DEVELOPMENT, BEHAVIOR AND ATTITUDES.** (3)
Study of human sexuality, including the process of gender differentiation, sexual response patterns, sexual behavior and attitudes. Prereq: Three hours in social or behavioral science.

**FAM 254 DEVELOPMENTAL PSYCHOLOGY.** (3)
An introduction to the principles of developmental psychology as seen in human growth over the entire lifespan, with the primary focus on infancy through adolescence. Emphasis is placed on theory and data relating to the developmental aspects of cognition, language and personality. Prereq: PSY 100. (Same as PSY 223.)

**FAM 255 CHILD DEVELOPMENT.** (3)
An overview of the various aspects of development (physical, social, emotional, intellectual) for children ages birth through adolescence. Course will emphasize techniques of directed observation.

**FAM 256 GUIDANCE STRATEGIES FOR WORKING WITH YOUNG CHILDREN.** (3)
Examination of effective guidance strategies for use with young children in non-public school settings; modification of experiences for age level, ability, group and individual needs. Application and evaluation of guidance skills in laboratory experience. Lecture, two hours; laboratory, two hours per week. Prereq: PSY 223 (or FAM 254) or FAM 255.

**FAM 257 INTRODUCTION TO FAMILY INTERVENTION: WORKING WITH FAMILIES AND INDIVIDUALS.** (3)
Survey course to introduce students to the various skills and strategies used by family scientists in helping relationships. The emphasis will be on learning the skills required to provide support for families and individuals. Prereq: IFDE, FRMC and HEED majors only, and FAM 251, 252, or 255.

**FAM 258 CHILD DEVELOPMENT AND FAMILY LIFE IN JAPAN AND CHINA.** (3)
Consideration of structure and function of the family, marriage and kinship patterns, socialization of children and personality development, attitudes and values relating to children, economic practices within the family, and how these family values and patterns in Japan, Mainland China, and Taiwan relate to the historical and philosophical bases of Eastern cultures.

**FAM 304 PERSONAL AND FAMILY RISK MANAGEMENT.** (3)
An in-depth study of the topic of risk management with an emphasis on applications for individuals and families. Various methods of managing risk will be addressed with the principal focus on insurance as a means for reducing risk associated with property, liability, income, health, and disability protections. Prereq: FAM 251.

**FAM 350 CURRICULUM PLANNING IN EARLY CHILDHOOD EDUCATION.** (4)
Theories, research and strategies for planning, implementing and evaluating learning experiences for young children (2-8 years). Application in practicum at the Early Childhood Lab. Lecture, two hours; laboratory, four hours per week. Prereq: FAM 255 or six hours in social or behavioral science.

**FAM 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE.** (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/SOC SW 354.)

**FAM 356 MIDDLE CHILDHOOD.** (3)
Examination of the various aspects of development including physical, social, emotional and cognitive for children ages 9-12 years. Emphasis is on the current research and theories most relevant to the age group. Prereq: FAM 255 or equivalent.

**FAM 357 CONTEMPORARY ADOLESCENCE.** (3)
A survey of contemporary adolescent development and behavior with special emphasis on the multiple forces which affect this stage of development. Prereq: Six hours in social or behavioral science or consent of instructor.

**FAM 390 INTRODUCTION TO RESEARCH IN FAMILY STUDIES.** (3)
An introduction to research design, methodology, instrumentation, and data analysis with emphasis on a student's ability to understand and critique research in human development and family relations. Prereq: One course in FAM and STA 200 or consent of instructor.

**FAM 402 FAMILY ECONOMICS AND MANAGEMENT ISSUES.** (3)
Examination of family economics and management issues and analysis of their impact on the economic well-being of families. Prereq: FAM 251 or consent of instructor.

**FAM 410 PRACTICUM IN APPLIED CHILD DEVELOPMENT.** (4-6)
Supervised practicum in a community agency. Emphasis on observing children and/or adolescents and developing competencies in providing services to these ages on either an individual, small, or large group basis. Biweekly discussion will provide analysis of problems related to these competencies. Lecture, one hour biweekly; laboratory, 8 to 12 hours per week. Pass/fail only. Prereq: FAM 255; senior standing or consent of instructor.

**FAM 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION.** (6-12)
Course designed to give students experience with supervised teaching at two levels: pre-primary and primary. Emphasis will be placed on observation and teaching (individual, small, and large group methods). One afternoon per week will be devoted to a discussion and analysis of problems in student teaching. Discussion, two hours; laboratory, 22 hours per week. To be offered pass-fail only. Prereq: Completion of professional sequence and formal admission to student teaching; admission to the Teacher Education Program or permission of instructor. (Same as EDC 411.)

**FAM 463 CONCEPTS OF PERSONAL AND FAMILY MANAGEMENT.** (3)
Concepts of management related to individuals and families throughout the life cycle. Emphasis is given to decision-making for achieving goals through the use of family resources. Experiences in applying management concepts will be required. Prereq: Three hours of Family Studies and junior or senior class standing.

**FAM 486 FIELD EXPERIENCES IN FAMILY RESOURCE MANAGEMENT.** (3)
Field training in community setting. Opportunities for developing competencies in planning and conducting individual and small group experiences related to family resource management. Lecture, one hour; laboratory, seven hours per week. May be repeated to a maximum of six credits. Prereq: Senior standing and consent of instructor.

***FAM 499 FIELD EXPERIENCES IN INDIVIDUAL AND FAMILY STUDIES.** (3)
Field training in a community setting. Opportunities for developing competencies in planning and conducting individual and small group experiences related to human development and family relations. Lecture, one hour; laboratory, seven hours. May be repeated to a maximum of six credits. Prereq: Senior standing and consent of instructor.

**FAM 501 SYSTEMIC FAMILY DEVELOPMENT.** (3)
An exploration of normal family functioning from family systems theory and family development/life cycle perspectives. Emphasis will be placed on recent theory development and research pertaining to the study of the family and a critique of this work. Prereq: FAM 252 and FAM 255 or equivalents.

**†FAM 503 FAMILY HOUSING ISSUES.**

**FAM 507 ASSESSMENT OF YOUNG CHILDREN.** (2)
The nature of assessment and measurement of skills in children from birth to age eight. Training in the development and use of commercially available and teacher-made assessment devices and techniques suitable for teachers to administer. Includes observation and tests in the sensori-motor, perceptual, intellectual, social-affective and academic skill areas for teachers of young children. Includes laboratory experience in assessment of children ages 3-8. Lecture, one and one-half hours; laboratory, one hour. Prereq: FAM 255.

**FAM 509 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE.** (3)
A study of American family experience and values from its pre-industrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as HIS 596, SOC 509.)

**FAM 544 CULTURAL DIVERSITY IN AMERICAN CHILDREN AND FAMILIES.** (3)
Study of cultural and linguistic diversity in American children and families, with special emphasis on Kentucky children and families. Consideration of implications for working with young children and families in educational settings. Study of the variations in beliefs, traditions, values and cultural practices within American society, and their effects on the relationships between child, family, and school. Prereq: An advanced undergraduate course in family or child development or consent of instructor.

**FAM 550 CHILDREN AND FAMILY IN APPALACHIA.** (3)
Exploration of family life and the socialization of children in the Appalachian Southern Highlands from both an historical and a contemporary comparative perspective. Prereq: Six hours of social sciences or consent of the instructor. (Same as ANT 527.)

**FAM 551 WOMAN IN CONTEMPORARY SOCIETY.** (3)
An examination of the development of modern American women through the life span. The course emphasizes how female biology and socialization, as well as demographic, political and economic forces, help to create important differences in female development from that of males. Consideration is given to uniquely female events such as menstruation, pregnancy, childbirth, motherhood, and menopause. Modern social problems that particularly affect women, including poverty, provision of child care, psychological depression, role overload, being a displaced homemaker, and widowhood are also discussed. Prereq: Six hours of social sciences or consent of instructor.

**FAM 552 ADMINISTRATION AND SUPERVISION IN EARLY CHILDHOOD EDUCATION PROGRAMS.** (3)
A course designed for students preparing to become administrators and supervisors in Early Childhood Education Programs. Consideration is given to program evaluation, personnel training and supervision, appropriate curriculum materials, parent involvement and education, program management and funding. Prereq: FAM 350.

**FAM 553 THE CHILD IN HIS/HER FAMILY.** (3)
Preparation and presentation of research reports of studies of family influences on the personality and development of children. Prereq: FAM 252, and six credits in sociology and/or psychology.

**FAM 554 WORKING WITH PARENTS.** (3)
Principles, techniques, and resources relevant to working with parents as individuals, couples, and families. Survey of related literature on parent effectiveness and parent education is included with relevant field experiences. Lecture, two hours; laboratory, two hours. Prereq: FAM 350 and six hours of 300 level or above in social and behavioral sciences or consent of instructor.

**FAM 555 FOSTERING COGNITIVE DEVELOPMENT IN CHILDREN.** (3)
Study of the child's development of reasoning and concept formation, perception of reality, and language. Consideration of relevant research and theory and their applications to the education of pre-school children. Examination of the methods and techniques for teaching pre-school children in the areas of math, science, social studies, and language arts. Prereq: FAM 255 or equivalent.

**FAM 557 INFANT DEVELOPMENT.** (3)
The development of the young child during the prenatal period, infancy and toddlerhood. Care and guidance of the child during the first two years of life. Lecture, two hours; laboratory, two hours per week. Prereq: Six hours of child development, psychology or equivalent.

**FAM 561 MANAGEMENT FOR FAMILIES WITH LIMITED RESOURCES.** (3)
Study of family and community resources which may be utilized to improve family management. Specific emphasis will be placed on the needs of families with limited resources and the community agencies and organizations which fulfill these needs. Prereq: FAM 463.

**†FAM 562 MANAGEMENT FOR MULTI-ROLES.**

**FAM 563 FAMILIES, LEGISLATION, AND PUBLIC POLICY.** (3)
A study of the impact of legislation and public policies on the well being of the family. Emphasis on the involvement of individuals and families with policies and legal resources as a means for realizing satisfying life styles. Prereq: FAM 252.

**FAM 573 FAMILY LIFE EDUCATION.** (3)
Historical development, current programs, and emerging trends in family life education with particular emphasis on programs and techniques for teaching sex education, marital relations, parenting and human development. Prereq: FAM 252 or consent of instructor.

**#FAM 574 SPECIAL TOPICS IN FAMILY RESOURCE MANAGEMENT (Subtitle required).** (1-3)
Course will focus on selected topics drawn from various areas of family resource management taught by faculty members with special interests and competence. May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor.

**#FAM 575 SPECIAL TOPICS IN INDIVIDUAL AND FAMILY DEVELOPMENT (Subtitle required).** (1-3)
Course will focus on selected topics drawn from various areas of individual and family development taught by faculty members with special interests and competence. May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor.

**FAM 585 AGING AND ENVIRONMENT.** (3)
Explores the elderly person's changing experience of environment. Physiological, psychological and social changes are related to adjustment within urban and rural community environments, special housing for the elderly, and long-term care environments. Prereq: Graduate or advanced undergraduate standing and consent of instructor. (Same as GEO 585.)

***FAM 594 INDEPENDENT WORK IN FAMILY RESOURCE MANAGEMENT.** (1-3)
Intensive independent work on specific phases or problems in the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

***FAM 595 INDEPENDENT WORK IN INDIVIDUAL AND FAMILY DEVELOPMENT.** (1-3)
Intensive independent work on specific phases or problems in the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FAM 602 CONSUMER ECONOMICS.** (3)
A study of consumer economics with emphasis upon application of the theories and principles toward solution of problems of the individual and family unit as a part of the total economy. Prereq: ECO 201 or equivalent; FAM 250, FAM 251, or consent of instructor.

**FAM 603 THEORY AND RESEARCH IN FAMILY ECONOMICS AND MANAGEMENT.** (3)
Research and theories in family economics and management with special emphasis given to current issues. Conceptual frameworks developed by leaders in family economics and management are studied. Prereq: FAM 463 and undergraduate work in statistics and research methods or consent of instructor.

**FAM 624 PERSPECTIVES ON HUMAN SEXUALITY.** (3)
An examination and study of historical and current perspectives of sexuality as it relates to behavioral patterns, cultural attitudes, social policy and practice. Prereq: Knowledge of human behavior and personality theory highly recommended. (Same as SW 624.)

**FAM 652 READINGS IN FAMILY THEORY AND RESEARCH.** (3)
Entry level course for graduate work in the study of the family with a focus on family theory and research. Conceptual frameworks and theoretical approaches to the study of the family together with extensive reading of relevant supporting research are covered. Critical evaluation of macro theories and micro theories of the middle range and historical perspective on the development and evolution of family theory are emphasized. Prereq: Six hours in family-related social or behavioral sciences or consent of instructor.

**FAM 654 LIFE SPAN HUMAN DEVELOPMENT AND BEHAVIOR.** (3)
A survey of human development across the life span of the individual from conception to death. Content includes changes in motor skills, biological growth and decline, learning behavior, language, social, emotional, moral, and intellectual development as well as the roles of the family, the school, peers, and work in relation to individual development. Critical evaluation of current theories which describe human development. (Same as EDP 600.)

**FAM 655 THEORY AND DYNAMICS OF HUMAN DEVELOPMENT.** (3)
Advanced study of theory and research relating to the processes and outcomes of human development throughout the life cycle. Prereq: An advanced undergraduate course in child or human development or consent of instructor.

**FAM 656 ADULT DEVELOPMENT IN THE FAMILY.** (3)
Individual development during young adulthood and middle age, but not including aging or the aged. Particular emphasis is placed on the impact of marital, familial, and parenting careers on individual development in other areas. Theories relating to role negotiations, identity, and the family life cycle are also considered. Prereq: Graduate standing or consent of instructor.

**FAM 657 FAMILY SYSTEMS THEORY.** (3)
An investigation into the evolution and development of family systems theory, beginning with general systems theory and extending into the current applications to family studies. Emphasis is upon evaluation of the theory and its derivatives together with relevant research pertaining to the theory. Prereq: Six hours in family-related social or behavioral sciences or consent of instructor.

**FAM 658 ADOLESCENT DEVELOPMENT.** (3)
A survey of theory and research in adolescent development with particular emphasis on the role of families and implications for working with adolescents. Prereq: Six hours in social or behavioral science.

***FAM 659 ADVANCED CHILD DEVELOPMENT.** (3)
Advanced survey of theoretically and professionally important topics in child development. Particular attention to current theory and research in social, affective, cognitive and language domains; familial/cultural influences; the interdisciplinary nature of the knowledge base; and issues concerning the application of child development knowledge to professional work with children. Prereq: Six hours in social or behavioral sciences or family studies, including one course in child or human development, or consent of the instructor.

**#FAM 660 AGING AND FAMILY VALUES.** (3)
The study of dynamics of family interactions and issues when some family members are elderly. Emphasis is placed on perspectives from multiple generations and across various kin categories.

**FAM 662 SOCIAL AND ECONOMIC DECISION MAKING IN THE FAMILY.** (3)
Special study of social and economic decisions affecting family resource management. Prereq: FAM 463 or consent of instructor.

**FAM 668 ALLOCATION OF FAMILY RESOURCES.** (3)
Study of the contributors to and the recipients of family resources. Emphasis upon the recognition and analysis of patterns of resource utilization and the effect of definite factors such as standard of living on those patterns. Prereq: FAM 251 and 463 or consent of instructor.

**FAM 685 PROFESSIONAL ISSUES IN MARRIAGE AND FAMILY INTERVENTION.** (3)
Exploration and definition of the legal, ethical, and professional issues in the practice of marriage and family intervention. Emphasis will be on developing professional skills, attitudes, and identity for marriage and family intervention. Prereq: FAM 657 and 686 or consent of instructor.

**FAM 686 THEORY AND METHODS IN MARRIAGE AND FAMILY THERAPY.** (3)
A survey of theories and methods used in marriage and family therapy. Designed to provide students with a knowledge of the theoretical bases for marriage and family therapy, including an introduction to procedures used to assess, diagnose and treat marriage and family dysfunctions. Prereq: FAM 657 or consent of instructor. (Same as EDP 686.)

**FAM 687 TREATMENT MODALITIES IN MARRIAGE AND FAMILY THERAPY.** (3)
The primary systemic modalities in marriage and family therapy are presented both in theory and in case study analysis. The presenting problem, history of the problem, family history, identification of dysfunctional dynamics, goals, plan of treatment, and outcome/evaluation are emphasized in each modality. Procedures of assessment, diagnosis, and intervention specifically applicable to each modality are emphasized together with techniques common to both systemic and nonsystemic modalities. Research relevant to outcome/evaluation of each modality is also emphasized. Students are expected to observe marriage and family therapy and to serve as beginning level co-therapists with more advanced students under faculty supervision. Prereq: FAM 657, 686 and admission to the graduate program in Family Studies.

**FAM 688 FAMILY STRESS AND THERAPEUTIC INTERVENTION.** (3)
An examination of the normative and nonnormative stressor events experienced by families. Family crisis theory and the research strategies used to explore family adaptation to stress and crisis will be explored. Emphasis will be on the impact these stressor events have on family life, methods of coping, and principles and techniques of therapeutic intervention. Prereq: FAM 652 or consent of instructor.

**FAM 689 PERSPECTIVES ON DIVORCE AND REMARRIAGE.** (3)
Examination of research, theory and intervention strategies for family experiences: divorce, single-parenting, and remarriage. Focus on family dynamics and child outcomes during these normative family changes. Prereq: Six graduate credits in human development, family relations or equivalent; consent of instructor.

**FAM 690 FAMILIAL AND DEVELOPMENTAL RESEARCH METHODS.** (3)
The study of research techniques and methodological problems involved in home economics research on the family. Emphasis is placed on research concerning interrelations between the family and its environment, development within the family, and family dynamics. Prereq: Consent of instructor.

**FAM 693 FAMILY SYSTEMS APPROACH TO SEXUAL PROBLEMS IN MARRIAGE AND FAMILY THERAPY.** (3)
Study of sexual problems in the context of marriage and family therapy. A family systems perspective will be used to understand and work with couples and families who present with sexual problems in marriage and family therapy. Prereq: FAM 686.

**FAM 699 FIELD EXPERIENCES IN FAMILY STUDIES.** (1-3)
Field training in a community setting related to family science for graduate students. Opportunities for developing competencies in planning and conducting programming in human development, family relations, early childhood education, and family resource management. Student will work under the supervision of a faculty and a training site supervisor. May be repeated to a maximum of six credits. Laboratory, three to nine hours per week. Open to HEIE, HEFD, HEFE, and HEEC majors only with prior consent of instructor.

**#FAM 710 CURRENT TRENDS IN EARLY CHILDHOOD EDUCATION AND CARE.** (3)
A study of major trends and issues in early childhood education and care. Several contemporary early childhood trends will be examined and analyzed in terms of appropriateness for specific populations. Prereq: FAM 659 or consent of instructor.

**FAM 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**FAM 752 SEMINAR IN FAMILY THEORY CONSTRUCTION.** (3)
An advanced seminar focusing on the definition, evaluation and construction of family theory. Inductive and deductive theory construction strategies are surveyed, evaluated and applied. Prereq: FAM 652. (Same as SOC 752.)

**FAM 759 SPECIAL ADVANCED TOPICS IN FAMILY STUDIES.** (1-3)
Intensive study of advanced topics and problems from family studies or subfields: marriage and family counseling, individual development within the family, early childhood education, and family economics and management. Consideration of current issues and theories, research literature, and research methods. May be repeated under different subtitles to a maximum of six credits. Prereq: Consent of instructor.

**FAM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**FAM 773 SEMINAR IN FAMILY ECONOMICS AND MANAGEMENT.** (3)
Preparation and presentation of reports of current investigations in family economics and management. May be repeated to a maximum of six credits. Prereq: Graduate standing and consent of instructor.

**FAM 775 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY STUDIES.** (1-3)
Preparation and presentation of reports of current investigations in human development and family relations. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FAM 776 PROSEMINAR IN MARRIAGE AND FAMILY THERAPY: (SUBTITLE REQUIRED).** (1-3)
Intensive study of skills, issues, or treatment procedures in marriage and family therapy. May be repeated under different subtitles to a maximum of six credits. Prereq: Consent of instructor.

**FAM 785 ADVANCED PROBLEMS IN INDIVIDUAL AND FAMILY DEVELOPMENT.** (1-3)
Independent advanced work. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FAM 786 ADVANCED PROBLEMS IN FAMILY ECONOMICS AND MANAGEMENT.** (1-3)
Independent advanced work in family economics and management. May be repeated to a maximum of six credits. Prereq: Graduate standing and consent of department chairperson.

**FAM 787 SUPERVISED EXPERIENCE IN THE PRACTICE OF MARRIAGE AND FAMILY THERAPY.** (1-6)
Supervised experience in the practice of marriage and family therapy. Students are required to spend one hour per week in lecture and one hour per week in individual supervision and three hours per week in group discussion of professional issues in conjunction with case management and administration. A minimum of eight hours of client contact per week is expected. May be repeated to a maximum of 18 credits. Prereq: Consent of supervising faculty committee required.

## FIN Finance

**FIN 300 CORPORATION FINANCE.** (3)
An introduction to the basic principles, concepts, and analytical tools in finance. Includes an examination of the sources and uses of funds, budgeting, present value concepts and their role in the investment financing and dividend decision of the corporate enterprise. Prereq: ECO 202, ACC 202.

**FIN 350 FUNDAMENTALS OF INVESTING.** (3)
Investigation of various investment opportunities. Primary emphasis on financial assets such as stock, bonds, options, and futures contracts. Also considers real estate, insurance, and similar alternatives. Operation of financial markets; security analysis and valuation models, forecasting. Efficient markets: random walk vs. technical analysis. Description of portfolio management.

**FIN 360 PRINCIPLES OF REAL ESTATE.** (3)
An overview of the basic concepts and principles of real estate in the private and public sectors. The course provides an introduction to real estate issues and a foundation for further study in the various specialized areas of real estate and urban development. Prereq: A grade of C or better in FIN 300 or consent of instructor.

**FIN 395 INDIVIDUAL WORK IN FINANCE.** (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

**FIN 410 ANALYSIS OF FINANCIAL INFORMATION.** (3)
Begins with a review of the informational inputs to financial decision-making, including financial statements and other economic data. Some emphasis placed on the interpretation of "noncomparable" data across firms, and the application of popular analytic techniques. Studies evaluating the usefulness of financial data will also be reviewed. Prereq: ECO 391, ACC 301 and a grade of C or better in FIN 300.

**FIN 423 INTERNATIONAL FINANCE.** (3)
The course provides an overview of world trade, international monetary and trade theory, and the theory of exchange rate determination. Focus is on the management of short- and long-term international assets, with particular attention given to the direct investment decision and on financing international operations. Prereq: A grade of C or better in FIN 300.

**FIN 445 CAPITAL INVESTMENT AND FINANCING DECISIONS.** (3)
Primary emphasis on the application of financial concepts and tools of analysis. Case analysis is used to simulate "real world" environment. Topics include capital budgeting, financing decisions, cost of capital, leasing, dividend policy, and mergers and acquisitions. Prereq: A grade of C or better in FIN 300.

**FIN 447 WORKING CAPITAL MANAGEMENT.** (3)
Primary emphasis is placed on the study of short-term financial management policies. Course topics include cash management, marketable security investment, credit and inventory policies, as well as alternative sources of short-term funding. Some casework is involved. Prereq: A grade of C or better in FIN 300.

***FIN 450 INVESTMENT ANALYSIS.** (3)
Analysis of corporation statements for investment purposes; the security market; market influences on security prices; effect of interest changes on security prices; and the development of investment programs. Prereq: ACC 301 or FIN 410; ECO 391; and grades of C or better in FIN 300 and 350.

**FIN 452 OPTIONS AND FUTURES.** (3)
A study of the options and futures markets including institutional aspects, pricing, and regulation. Primary emphasis will be on the uses and applications of options and financial futures. Prereq: FIN 300 (grade of C or better), ECO 391, ECO 485G, and a course in investment; or consent of instructor.

**FIN 464 REAL ESTATE FINANCE.** (3)
The course surveys the sources and uses of real estate funds. The institutions which provide funds and the various types of financial instruments are described and compared. Likewise, various forms of real estate investment are analyzed and methods of determining value are critiqued. Prereq: A grade of C or better in FIN 300.

**FIN 480 MONEY AND CAPITAL MARKETS.** (3)
A study of the institutional structure and theory of the money and capital markets, including the types of financial claims traded in such markets, the major buyers and sellers, the regulatory environment, capital market theory, and the forces of supply and demand affecting the level and structure of interest rates. Prereq: ECO 485G, a grade of C or better in FIN 300 or consent of instructor.

**FIN 585 BANK MANAGEMENT.** (3)
A study of the principles and cases in commercial banking practice. Bank management practices are studied within the economic, monetary, fiscal and legal framework of the American economy. Prereq: ECO 485G, a grade of C or better in FIN 300, or consent of instructor.

**FIN 600 CORPORATE FINANCIAL POLICY.** (3)
A study of financial management from the viewpoint of the corporate financial officer. Areas studied include capital budgeting, capital structure, financing decisions, working capital management, dividend policy, and mergers and acquisitions. Prereq: Graduate standing: ECO 610, ACC 628, MGT 650.

**FIN 623 INTERNATIONAL FINANCIAL MANAGEMENT.** (3)
This course provides an overview of financial management at the international level. Topics covered include: The nature and uses of international financial markets, the financial behavior of multinational corporations, exchange rates, and hedging in international business. Prereq: FIN 600 and consent of the instructor.

**FIN 637 HEALTH FINANCE.** (3)
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: MHA/MPA program status and HA 601, HA 621, PA 623, HA 635. (Same as HA/PA 637.)

**FIN 645 CORPORATE INVESTMENT AND FINANCING POLICY.** (3)
Emphasizing both theory and practice, this course is an in-depth study of long-term corporate investment and financing decisions. Topics include valuation, capital budgeting, cost of capital, leasing, dividend policy, capital structure, and mergers and acquisitions. Prereq: FIN 600.

**FIN 647 WORKING CAPITAL POLICY.** (3)
A study of short-term financial policies primarily from the corporate financial officer's viewpoint. Areas studied include working capital management, liquidity policy, banking relations, investment in money market instruments and financial statement forecasting. Prereq: FIN 600.

***FIN 650 INVESTMENTS.** (3)
Analysis and valuation of securities and the effects on investment decisions. Prereq: Appropriate undergraduate courses in accounting and finance.

**FIN 656 PORTFOLIO MANAGEMENT.** (3)
A study of the advanced analytical processes involved in portfolio selection and management. Topics include alternative models for allocating resources among risky alternatives and evaluation of performance. Prereq: FIN 600 and FIN 650 or consent of the instructor.

**FIN 664 REAL ESTATE FINANCE.** (3)
A basic orientation in commonly used instruments, institutional structures, and real estate financing policies. Emphasis will be placed on mortgage instruments, mortgage types, effective cost of borrowing, construction lending, financial institutions, loan underwriting, and the secondary mortgage market. Analysis is primarily from the debt investor's perspective. Prereq: FIN 600 and consent of instructor.

**FIN 695 INDIVIDUAL WORK IN FINANCE.** (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FIN 700 SEMINAR IN FINANCIAL THEORY.** (3)
Primary emphasis on the theory of financial asset valuation. Topics include utility theory, investor reaction to uncertainty, cost of capital theory, dividend theory, portfolio theory, and asset pricing in equilibrium. Prereq: FIN 600 and FIN 650.

**FIN 745 SEMINAR IN MANAGERIAL FINANCE.** (3)
Primary emphasis on the implementation of financial theory for the management of the assets of a business firm. Topics include capital budgeting, working capital planning, financing the firm, cost of capital and the financial structure of the firm, and mergers and acquisitions. Prereq: FIN 700.

**FIN 750 SEMINAR IN INVESTMENT THEORY.** (3)
Primary emphasis on the implementation of financial theory for the evaluation and management of financial assets in an efficient capital market. Topics include mean-variance efficiency, development and testing of the capital asset pricing model, stochastic dominance, and option pricing theory as well as other topics in modern capital market theory. Prereq: FIN 700 or equivalent, or consent of instructor.

**FIN 780 SEMINAR IN FINANCIAL INSTITUTIONS.** (3)
An examination of the role of financial institutions in the financial system and in the economy, with special emphasis on commercial banks. Topics covered include: theories of financial intermediation, asset-liability management, regulation and deposit insurance, structure of the financial institutions industry, and empirical models of banking. Prereq: FIN 700.

**FIN 791 SEMINAR IN FINANCE.** (3)
Each semester some topic currently discussed in scholarly journals in finance will be studied intensively. May be repeated to a maximum of nine credits. Prereq: Consent of the instructor.

**FIN 795 INDEPENDENT WORK IN FINANCE.** (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a total of six credit hours. Prereq: Consent of instructor.

## FOR Forestry

**FOR 100 INTRODUCTION TO FORESTRY.** (3)
A brief coverage of the general fields of forestry; development and importance; tree growth; principal forest regions and important timber species; forest management practices; utilization and products; state and federal forestry programs.

**FOR 101 INTRODUCTION TO WILDLIFE CONSERVATION.** (3)
An introduction to the history, concepts, and principles of wildlife biology and management. The role of wildlife in ecological systems and human-altered environments will be discussed. Lecture, two hours; laboratory, two hours per week.

**FOR 200 MAP READING AND PHOTOGRAMMETRY.** (2)
Use of topographic maps and aerial photos to determine distances, heights, directions, and areas. Location of ground features on maps and photos and of map and photo features on the ground. Laboratory, four hours per week. Prereq MA 109 and MA 112 or high school equivalents.

**FOR 205 FOREST AND WILDLAND SOILS AND LANDSCAPES.** (4)
A study of soil-plant-landscape relationships as related to forestry and the management of natural ecosystems. Emphasis will be on properties and processes of wildland soils, and on interrelationships between soils; composition and productivity of plant communities; and the structure, form, and functioning of landscapes. Lecture, three hours; laboratory, three hours per week. Prereq: At least three credits of biology and three credits of chemistry.

**FOR 219 SILVICS AND TREE IDENTIFICATION.** (3)
Silvics, taxonomy, and preparation of woody plants native to the U.S. Lecture, two hours per week; laboratory, three hours per week, with field trips to local forests. Prereq: One semester of botany.

**FOR 221 WINTER DENDROLOGY.** (1)
Identification of 100 species of trees, shrubs, and lianas based upon bark, form, twig, and bud characteristics. Laboratory; four hours per week for one-half semester. Prereq: FOR 219.

**FOR 300 FOREST MEASUREMENTS.** (4)
Basic forest surveying; units of measure and their application in determining volume in forest stands and products; statistical techniques and photogrammetry in volume estimate; site classification and growth determinations; continuous forest inventory and data processing techniques. Lecture, three hours; laboratory, two hours. Prereq: MA 123 and STA 291.

**FOR 340 FOREST ECOLOGY.** (3)
The study of the forest as a biological community with emphasis on the interrelationships between trees and other organisms comprising the community, and the interrelationships between these organisms and the physical environment. Lecture, two hours; laboratory, three hours per week. Prereq: FOR 205 and FOR 219, or consent of instructor.

**FOR 350 SILVICULTURE.** (4)
Principles and techniques of intermediate cutting, natural and artificial regeneration, systems of reproduction, application of genetics and tree improvement to intensive forest management, and silviculture of some of the major forest types of the United States. Lecture, three hours; laboratory, two hours with occasional extended field trips. Prereq: FOR 205, FOR 219, FOR 340, or consent of instructor.

**FOR 360 WOOD TECHNOLOGY AND UTILIZATION.** (4)
General anatomy of wood and study of its properties. Identification of major species based on microscopic and macroscopic features. Sources, processing, and utilization of wood products. Lecture, three hours; laboratory, two hours per week. Prereq: BIO 106 and 107, PHY 151, or consent of instructor.

***FOR 375 TAXONOMY OF FOREST VEGETATION.** (1)
Field study of the identification and silvics of forest vegetation. One week summer field course. Prereq: FOR 205, FOR 219, and FOR 340; grade of C or better required in FOR 205 and FOR 219.

***FOR 376 SILVICULTURAL PRACTICES.** (2)
Field study of the relationship between specific site characteristics and yield of forest stands and the application of cultural practices to forest stands. Two week summer field course. Prereq: FOR 205, FOR 219, FOR 340, and FOR 350; grade of C or better required in FOR 205 and FOR 219.

***FOR 377 FOREST SURVEYING.** (1)
The application of surveying principles and techniques to forest land areas. One week summer field course. Prereq: FOR 200 and FOR 300; grade of C or better required in FOR 200.

***FOR 378 FOREST MENSURATION.** (2)
The application of mensurational principles and techniques in determining tree and stand volumes and growth; timber cruising; development of volume and stand tables. Two week summer field course. Prereq: FOR 200 and FOR 300; grade of C or better required in FOR 200.

***FOR 379 HARVEST AND UTILIZATION OF WOOD.** (2)
Study and use of harvesting and milling equipment in the harvest and manufacture of wood and wood products. Two week summer field course. Prereq: FOR 360.

**FOR 399 FIELD-BASED EDUCATION IN FORESTRY.** (1-6)
The use of field experience as an educational complement to classroom work. May be repeated to a maximum of 12 credits which are to be used as electives. Prereq: Permission of instructor and department chairperson. A departmental learning agreement must be completed prior to registration.

**FOR 402 FOREST ENTOMOLOGY.** (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as ENT 402.)

**FOR 405 MECHANICS AND PHYSICS OF WOOD.** (3)
Elastic behavior and mechanical properties of wood. Liquid movement, thermal, electrical, acoustical, and viscoelastic properties of wood. Timber structural design. Two class hours, two laboratory hours per week. Prereq: FOR 360.

**FOR 410 FOREST PATHOLOGY.** (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107 or BIO 351 or one equivalent semester of botany. (Same as PPA 410.)

**FOR 425 TIMBER MANAGEMENT.** (4)
The principles of sustained yield timber management, organization of the forest area, management objectives, timber valuation, regulation of the cut, and timber management plans. Lecture, three hours; laboratory, two hours. Prereq: MA 162, FOR 201, and Summer Camp (FOR 375, 376, 377, 378, and 379), or consent of instructor. (Same as AEC 425.)

**FOR 430 FOREST WILDLIFE AND RANGE MANAGEMENT.** (3)
The principles and practices of wildlife and range ecology and management with emphasis on the forest environment. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: Summer Camp (FOR 375, 376, 377, 378, and 379) or consent of instructor.

**FOR 440 FOREST RESOURCES FOR RECREATION.** (3)
Study of resource-oriented recreation in the forest. The recreational development of forest lands and waters and basic forest land management policies and principles related thereto. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: Summer Camp (FOR 375, 376, 377, 378, and 379) or consent of instructor.

**FOR 460G FOREST WATERSHED MANAGEMENT.** (3)
Principles and techniques involved in forest watershed management as related to the water resource. The influence of forestry practices on water movement into and through the watershed; water storage; water loss, vegetation and water yields; water quality. All-day field trip required. Prereq: Summer Camp (FOR 375, 376, 377, 378, and 379); or consent of instructor.

**FOR 461 INTRODUCTION TO POPULATION GENETICS.** (2)
This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and micro-organisms), but some theoretical derivations will also be introduced. Prereq: AGR 360 (or equivalent) and one course in probability/statistics. (Same as AGR/BIO/ENT 461.)

**FOR 480 INTEGRATED FOREST RESOURCE MANAGEMENT.** (5)
This is the capstone course in the forestry curriculum. Students will be presented with a real life management scenario in a forested location in Kentucky. They will be required to collect data, determine management objectives, and develop action plans for managing the forest according to the desires of the owner and subject to realistic legal, economic, and social constraints. Students will be required to present their management plans at the end of the semester to the faculty of the Department of Forestry. Lecture, three hours; laboratory, four hours per week. Prereq: FOR 425, FOR 430, FOR 440, and FOR 460G.

**FOR 512 FOREST TREE PHYSIOLOGY.** (3)
The fundamental principles of tree physiology with particular reference to the growth and development of forest species, and consideration of the influence of genetic and environmental factors on physiological processes in forest trees. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

**FOR 530 APPLICATIONS OF GIS IN NATURAL RESOURCES.** (4)
An introduction to geographic information systems (GIS) and their application to natural resource management problems. Students will learn the basic functions and uses of GIS, and will use a GIS to model spatial relationships to solve problems in wildlife, timber, recreation, and watershed management. Prereq: STA 291 and junior standing or above in Forestry or graduate student or permission of instructor.

***FOR 564 FOREST SOILS.** (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: PLS 366 and AGR 367 and consent of instructor. (Same as AGR 564.)

**FOR 599 INDEPENDENT WORK IN FORESTRY.** (1-3)
Study and independent work on selected problems related to allocation and utilization of natural resources. May be repeated to a maximum of six credits. Any combination of FOR 599 and FOR 781 cannot exceed six credits. Prereq: Senior or graduate standing and consent of instructor.

**FOR 608 BEHAVIORAL ECOLOGY.** (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as BIO/ENT 608.)

**FOR 609 COMMUNITY AND ECOSYSTEM ECOLOGY.** (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as BIO/ENT 609.)

**FOR 610 POPULATION ECOLOGY.** (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor (Same as BIO/ENT 610.)

**FOR 612 FOREST ECOSYSTEM ANALYSIS.** (3)
The study of ecosystem structure and function with emphasis upon eastern deciduous forest ecosystems. Topics discussed will include energy flow, mineral cycling, the influence of disturbance upon ecosystem properties and dynamic processes in the development of ecosystems. Prereq: FOR 340 or BIO 451G and consent of instructor.

**FOR 620 SPECIAL TOPICS IN FORESTRY (Subtitle required).** (1-3)
Special topical or experimental courses in forestry for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Forestry. May be repeated to a maximum of nine credits. Students may not repeat under the same subtitle. Prereq: Consent of instructor.

**FOR 622 PHYSIOLOGY OF PLANTS I.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant-cell biology, ion transport, water and translocation, respiration and photosynthesis. Prereq: BIO 430G or equivalent or consent of coordinator. Prereq or concur: BCH 501. (Same as AGR/BIO/HOR 622.)

**FOR 623 PHYSIOLOGY OF PLANTS II.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant hormones, an introduction to plant biotechnology, senescence and abscission, stress physiology, phytochrome-photomorphogenesis-phototropism nitrogen and sulfur metabolism.. Prereq: BIO 430G or equivalent, and BCH 501 or consent of coordinator. (Same as AGR/BIO/HOR 623.)

**FOR 630 WILDLIFE HABITAT ANALYSIS.** (3)
The components and structure of wildlife habitats and associated wildlife communities. Univariate and multivariate statistical methods of habitat analysis will be described and applied to data collected during laboratory periods to identify important habitat characteristics for selected wildlife species. The importance of habitat complexity will be demonstrated in laboratory and field situations. Lecture, three hours; laboratory, two hours. Prereq: FOR 430 and basic courses in statistics and ecology.

**FOR 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**FOR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours. Prereq: Consent of adviser and chairperson of the department.

**FOR 770 FORESTRY SEMINAR.** (1)
Reports and discussions of problems and investigations of problems in forestry and related fields. May be repeated to a maximum of three credits.

**FOR 781 SPECIAL PROBLEMS IN FORESTRY.** (1-3)
Advanced study of selected problem areas in forestry. May be repeated for a total of six credits; any combination of FOR 781 and FOR 791 cannot exceed six credits. Prereq: Consent of graduate adviser.

**FOR 791 RESEARCH IN FORESTRY.** (1-3)
Involves original research in selected areas of interest in forestry. May be repeated for a total of six credits; any combination of FOR 781 and FOR 791 cannot exceed six credits. Prereq: Consent of graduate adviser.

## FR French Language and Literature

**FR 011 FRENCH FOR READING KNOWLEDGE.** (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination.

**FR 101 ELEMENTARY FRENCH.** (4)
The study of basic French through grammar, reading and oral practice.

**FR 102 ELEMENTARY FRENCH.** (4)
A continuation of FR 101. The study of basic French through grammar, reading and oral practice. Prereq: FR 101.

**FR 106 ELEMENTARY FRENCH REVIEW.** (5)
A course equivalent in level to FR 102 designed to prepare students with two or three units of high school French for French 201 who, on the basis of the placement test, appear to lack sufficient skill in French for that course. Prereq: Two years of high school French and the placement test.

**FR 200 ORAL PRACTICE IN FRENCH III.** (1)
This course is designed for intermediate students who wish to strengthen speaking skills through practice in a supervised laboratory. Concur: FR 201.

**FR 201 INTERMEDIATE FRENCH.** (3)
Reading, conversation and oral comprehension are the basic aims of this course, which is structured around contemporary texts. Prereq: FR 102 or two years of high school French and placement test.

**FR 202 INTERMEDIATE FRENCH.** (3)
A continuation of FR 201. Prereq: FR 201 or three years of high school French and placement test.

**FR 203 ELEMENTARY FRENCH CONVERSATION AND COMPOSITION.** (2)
This course will develop conversational skill and introduce writing. Prema-jor requirement for the French major. Prereq or concur: FR 202.

**FR 204 PRACTICE IN READING FRENCH.** (2)
To enhance reading proficiency and accurate reading comprehension through exposure to a variety of writing styles; to increase awareness of the ways word choice and grammatical structures determine the treatment of a topic; and to show how to apply reading skills to expression in conversation and writing. Prereq: FR 202.

**FR 261 MASTERPIECES OF FRENCH LITERATURE IN TRANSLATION.** (3)
An esthetic and analytical approach to major texts (in English translation) by such authors as Corneille, Racine, Molière, Voltaire, Beaumarchais, Balzac, Huysmans, Cocteau, Gide, Sartre and Ionesco. No knowledge of French required.

**FR 300 ORAL PRACTICE IN FRENCH (Subtitle required).** (1)
Oral-aural practice in the spoken language. Emphasis in the expansion of conversational vocabulary. Designed to increase oral fluency in French. May be repeated to a maximum of three credits. May not be repeated under the same subtitle. Not open to students who are taking or who have taken FR 312 or FR 412. Prereq: FR 202 and FR 203 or equivalent.

**FR 304 INTRODUCTION TO FRENCH LITERATURE I.** (3)
A study of literary texts from the period before 1800 with emphasis on literary analysis and critical approaches. Lecture, discussion, reports. Prereq: FR 202 and FR 203 or equivalent.

**FR 305 INTRODUCTION TO FRENCH LITERATURE II.** (3)
A study of literary texts from the 19th and 20th centuries with emphasis on literary analysis and critical approaches. Lecture, discussion, reports. Prereq: FR 202 and FR 203 or equivalent.

**FR 306 INTERMEDIATE FRENCH COMPOSITION.** (3)
Intermediate grammar review and theme writing. Vocabulary expansion and practice in writing stylistically appropriate French. Prereq: FR 203 or equivalent.

**FR 307 FRENCH FOR BUSINESS AND ECONOMICS.** (3)
Development of specialized conversational and written proficiency necessary to import-export business activities, banking, insurance, business regulation, etc., in the French-speaking world. Prereq: FR 306.

***FR 310 FRENCH PHONETICS.** (3)
Phonetics and phonemics, theory and practice. Advanced corrective pronunciation drill on an individual basis. Prereq: FR 203.

**FR 312 INTERMEDIATE FRENCH CONVERSATION.** (3)
Intensive practice in oral French, emphasizing idiomatic speech. Designed to maintain oral fluency in French. Not open to students who are taking or who have taken FR 412. Prereq: FR 203 or equivalent.

**FR 375 STUDY IN FRANCE OR QUEBEC.** (4)
A study of the heritage and culture of France or French Canada, with special attention to the development of French conversational skills. Emphasizes contemporary culture and the history of French literature and civilization. May include escorted visits to appropriate sites, reinforced by formal lectures and directed study. May be repeated to a maximum of eight credits with a different topic and departmental approval. Prereq: FR 201 and consent of instructor.

**FR 395 INDEPENDENT WORK IN FRENCH.** (3)
Directed study in French literature and linguistics. May be repeated once. Prereq: Major, senior standing, 3.0 grade-point average in the department, consent of instructor, and approval of the Director of Undergraduate Studies.

**FR 406 ADVANCED FRENCH GRAMMAR AND COMPOSITION.** (3)
The course aims to present vocabulary and grammatical structures necessary in writing long, logically developed compositions in correct formal French. Compositions will be discussed and analyzed in class. Prereq: FR 306.

**FR 412 ADVANCED FRENCH CONVERSATION.** (3)
Practice of language skills at an advanced level. Emphasis on fluency and command of contemporary French speech. Preparation of oral presentations. Prereq: FR 306.

**FR 470G STUDIES IN FRENCH LITERATURE (Subtitle required).** (3)
Study of an author, literary form, topic, or problem. Taught in French. Course may be repeated to a maximum of nine credits under different subtitle. Prereq: FR 304 and FR 305.

**FR 501 FRENCH LITERATURE AND THE ARTS: THE MIDDLE AGES.** (3)
A study of the interrelationship of French narrative, dramatic and poetic literature with the other arts— music and the plastic arts— in the period 1050-1500. Readings in French: Course conducted in English.

**FR 502 FRENCH LITERATURE AND THE ARTS: LA BELLE EPOQUE.** (3)
A study of the literature of the late 19th and early 20th century and its extension into the arts. Readings in French, class conducted in English.

***FR 504 TOPICS IN FRENCH LITERATURE AND CULTURE (Subtitle required).** (3)
Intensive study of an author, genre, period or movement of French literature or an aspect of French culture. May be repeated to a maximum of nine credits under a different subtitle.

**FR 507 INTERPRETATION AND STYLE.** (3)
Study of French style with attention to written and oral expression. Introduction to stylistic theory and methodology. Prereq: FR 406 or graduate standing.

**FR 510 LINGUISTIC STRUCTURE OF MODERN FRENCH.** (3)
An introduction to the basic phonological, syntactic and semantic categories and processes of contemporary French as studied in the light of current linguistic theory and practice. Prereq: FR 306 or equivalent.

**FR 516 INTRODUCTION TO EARLY FRENCH.** (3)
An introduction to the study of Old and Middle French. Emphasis will be on understanding the language through an examination of its phonology and grammar, and through practice in reading from selected texts, chiefly literary. Prereq: FR 304 and 305.

**FR 550 FRANCE TODAY.** (3)
A contrast between contemporary France in today's Europe and the historical image of France. The impact of the "New Quiet French Revolution" and of the new institutions on French Society. Conducted in French. Prereq: FR 306 and consent of instructor.

**FR 553 TEACHING OF FRENCH.** (3)
The course is designed for teachers and prospective teachers of modern foreign languages, with emphasis on French. Modern methodology, theory and practice of language pedagogy.

**FR 601 POETIC VISION (Subtitle required).** (3)
Examination of the major trends in French poetics; attention will focus on aesthetic problems, generic concerns, and various approaches to the nature of poetry. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FR 602 NARRATIVE TRADITION (Subtitle required).** (3)
A study of narrative structure and techniques as exemplified in selected masterpieces of French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FR 603 THE DEVELOPMENT OF THE FRENCH LANGUAGE.** (3)
A history of the phonology and grammar of French from the origins to the present, with analysis and study of appropriate documents, literary and otherwise, to illustrate these developments, along with some introduction to the basic concepts of historical linguistics. Prereq: Consent of instructor.

**FR 604 THE TRAGIC MODE (Subtitle required).** (3)
A study of the concept of the tragic mode and its embodiment in French literature and critical theory. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FR 606 LITERATURE OF THE MIDDLE AGES (Subtitle required).** (3)
Special topics in French literature from the period 1050-1500. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**FR 607 STUDIES IN RENAISSANCE LITERATURE (Subtitle required).** (3)
Comprehensive study of selected writers. May be repeated under a different subtitle to a maximum of six credits. Prereq: Consent of instructor.

***FR 609 SEVENTEENTH-CENTURY STUDIES (Subtitle required).** (3)
Study of selected French writers, literary, intellectual and cultural practices of the time. May be repeated to a maximum of six credits under different subtitle. Prereq: Consent of instructor.

***FR 617 EIGHTEENTH-CENTURY STUDIES (Subtitle required).** (3)
Literary, intellectual and social practices and theories of the French Enlightenment. May be repeated to a maximum of six credits under different subtitle. Prereq: Consent of instructor.

**#FR 619 NINETEENTH-CENTURY STUDIES (Subtitle required).** (3)
Study of the intellectual, literary and social practices and theories of the major movements of the century, including Romanticism, Realism, and Symbolism. May be repeated to a maximum of six credits under different subtitle. Prereq: Consent of instructor.

***FR 621 TWENTIETH-CENTURY STUDIES (Subtitle required).** (3)
Study of the practices and theories of the major intellectual, literary and social movements of the century, such as modernism, existentialism, the new novel, post structural and postmodern writing. May be repeated to a maximum of six credits under different subtitle. Prereq: Consent of instructor.

**#FR 630 FRENCH LANGUAGE, LITERATURE AND CULTURE OUTSIDE FRANCE (Subtitle required).** (3)
Study of Francophone writing, currents of thought, and cross-cultural movements in Africa, the Caribbean, Quebec and elsewhere. May be repeated to a maximum of six credits under different subtitle. Prereq: Consent of instructor.

**FR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**FR 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**FR 780 SPECIAL STUDIES IN FRENCH.** (3)
Selected studies and investigations in the French language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of six hours. Prereq: Consent of instructor.

## FSC Food Science

***FSC 107 INTRODUCTION TO FOOD SCIENCE.** (3)
A general basic food science course that deals with world food needs and available food supplies, types of food and nutritive values and use, food processing technology and distribution methods.

**FSC 304 ANIMAL DERIVED FOODS.** (5)
Principles of red meat, poultry, fish and dairy processing; physical and chemical composition and nutritive values of meat, dairy and egg products; structure and identification of muscle; inspection, grading, formulation, processing and preservation methods; organoleptic properties and consumer acceptance of processed meat, dairy and egg products. Lecture, three hours; laboratory, four hours per week. Prereq: GEN 106 or GEN 107.

**FSC 306 INTRODUCTION TO FOOD PROCESSING.** (4)
Commercial processing of foods including theory and use of heat exchangers, separators, freezers, air and vacuum dryers, evaporators, membrane separation, electrodialysis, emulsion formers, extruders, and irradors. Physico-chemical changes in osmotic pressure, vapor pressure, pH surface tension, viscosity, emulsification and colloidal dispersions in processed foods will be discussed. Processing of waste streams will also be discussed. Prereq: CHE 105, CHE 107, CHE 236.

**FSC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE.** (2)
Course designed for students interested in pursuing independently some specific problem. May be repeated for maximum of four credits. Prereq: Consent of instructor. (Same as ASC 395.)

**FSC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE.** (1-6)
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as ASC 399.)

**FSC 434G FOOD CHEMISTRY.** (4)
Chemical and physical properties of proteins, lipids, carbohydrates, pigments and food additives as they relate to food processing and food preservation. Lecture, three hours; laboratory, two hours. Prereq: BCH 401G or consent of instructor.

**†FSC 470 SEMINAR IN ANIMAL SCIENCE/FOOD SCIENCE.**

**FSC 530 FOOD MICROBIOLOGY.** (5)
Study of procedures for the enumeration and identification of foodborne microorganisms important in the food industry. Principles for controlling contamination and growth of microorganisms during production, processing, handling and distribution of food products. Lecture, three hours; laboratory, four hours. Prereq: BIO 108 and BIO 109 or equivalent.

**FSC 535 FOOD ANALYSIS.** (4)
Techniques and instrumentation used to determine the chemical composition of foods. Emphasis is placed on the principles of chemical analysis as it relates to foods and food processing. Lecture, two hours; laboratory, four hours per week. Prereq: FSC 434G.

**FSC 536 ADVANCED FOOD TECHNOLOGY.** (4)
Concepts of developing/improving new food products or food processing including: consumer awareness, marketing, ingredient specifications, product formulation, stabilization of product, packaging to meet shelf life goals, shelf testing of products, challenge testing, establishment of HACCP system, consumers testing, market testing, and introduction to the market. A capstone course, where all concepts of food science are used to extend or create new food products for the market place. Lecture, three hours; laboratory, two hours. Prereq: AEN 340, FSC 306, and FSC 335; or consent of instructor.

**FSC 538 FOOD FERMENTATION AND THERMAL PROCESSING.** (4)
Thermal processing of foods. The use of microorganisms in the preservation of raw foods and the manufacture of new foods. Manipulation and improvement of cultures to ensure production of desirable end products. Lecture, three hours; laboratory, two hours. Prereq: BIO 108, BIO 109, BIO 476G, FSC 530 or consent of instructor.

**FSC 540 FOOD SANITATION.** (3)
A study of sanitation principles and techniques for ensuring the safety and wholesomeness of our food supply. Prereq: FSC 530 or equivalent.

**FSC 630 ADVANCED MEAT SCIENCE.** (4)
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: ASC 304, ASC/FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as ASC 630.)

**FSC 632 FOODBORNE DISEASE AGENTS.** (3)
Discussion of microorganisms, toxins and chemicals involved in foodborne illnesses as well as procedures for controlling and investigating foodborne disease outbreaks. Prereq: FSC 530.

**FSC 636 FOOD PACKAGING.** (2)
Detailed description of food packaging materials, composition and resistance to chemical and physical damage and their use in food systems as well as criteria for selection of packaging systems for specific food processing techniques will be presented. Methods of production, e.g.: blow mold, casting and estrusion; layering; lamination and co-extrusion; processing; and printing and sealing will be discussed. Prereq: FSC 536, FSC 538 or equivalent or consent of instructor.

**FSC 638 FOOD PROTEINS.** (3)
This course deals with chemical, biochemical, and enzymatic significance of proteins in food systems; physiochemical and functional properties of animal and plant proteins, their interactions with lipids, carbohydrates, flavors, minerals and other food components during processing and storage, and resulting modifications of food quality. Prereq: FSC 434G or consent of instructor.

**FSC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS.** (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 780.)

**FSC 790 RESEARCH IN ANIMAL DERIVED FOODS.** (1-6)
Problems involving original investigation. May be repeated for maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 790.)

## GEN Agriculture — General

**GEN 100 ISSUES IN AGRICULTURE: THE DEVELOPMENT OF MODERN AGRICULTURE.** (3)
An introductory course requiring critical analysis of the major social, economic, political and scientific issues in agriculture and related disciplines. The historical development of agriculture will be surveyed, followed by discussions of major issues in modern agriculture. Development of skills in information gathering, critical analysis of issues, and written and oral communication will be emphasized. Prereq: Freshman enrolled in College of Agriculture.

**GEN 101 THE ECONOMICS OF FOOD AND AGRICULTURE.** (3)
An introduction to the field of agricultural economics and some of the basic tools and concepts of decision making. Concepts are illustrated in terms of selected current social and economic issues including the role of agriculture in both a national and international dimension.

**GEN 102 THE DYNAMICS OF RURAL SOCIAL LIFE.** (3)
Introduces major concepts of sociology by exploring social, political and cultural issues confronting rural society and American agriculture, such as: population change, industrialization, energy developments, agricultural change. Student may not receive credit for both this course and SOC 101.

**GEN 103 AGRICULTURE PEST AND DISEASE MANAGEMENT.** (3)
An interdisciplinary study of the importance to agriculture of weeds, plant pathogens, insects, and animal pathogens; methods for managing pests and diseases, including economic and environmental considerations.

***GEN 104 PLANTS, SOILS, AND PEOPLE: A GLOBAL PERSPECTIVE.** (3)
A survey of important world grain, oil, fiber, forage, fruit, vegetable and specialty crop plants. Principles of plant, soil and climatic factors governing adaptation and production of these plants are discussed and applied. Intended to provide substantial plant and soil science background for students not majoring in plant and soil science, but is open and should appeal to beginning plant and soil science majors as well.

**GEN 105 ENGINEERING APPLICATIONS IN AGRICULTURE.** (3)
This course is a comprehensive overview of basic engineering principles and technology which have applications in agricultural production and resource management. It is designed for freshman and sophomore students in the College of Agriculture.

**GEN 200 ISSUES IN AGRICULTURE: CONTEMPORARY PROBLEMS IN AGRICULTURE AND FORESTRY.** (3)
An intermediate course which extends the critical analysis of selected issues in agriculture and related disciplines begun in GEN 100. Continues the development of skills in information gathering, critical analysis, and written and oral communication. Students will be required to investigate scientific literature germane to the issues covered and develop reviews, reports and position papers. Prereq: Sophomore enrolled in College of Agriculture.

**GEN 300 SPECIAL COURSE.** (1-3)
Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Agriculture. A particular course may be offered at most twice under the GEN 300 number, and no GEN 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor. Hours are variable with each special course. Prereq: As specified by the instructor.

**GEN 301 AN INTRODUCTION TO CHINESE CULTURE THROUGH AGRICULTURE.** (3)
This course is designed to introduce students to basic culture in China. Students will learn about Chinese agriculture, languages, customs, history, the political and educational system, geography and the economy. The culmination of the course is a three-week trip to China. Only students committed to go on trip to China will be enrolled in the course. First priority for the trip is given to College of Agriculture students.

## GEO Geography

**GEO 130 PHYSICAL GEOGRAPHY.** (3)
The basic earth environment discussed from the standpoint of process. Weather, landforms, climates, vegetation, and soils are emphasized. Fulfills elementary certification requirements for education requirements.

**GEO 152 REGIONAL GEOGRAPHY OF THE WORLD.** (3)
A study of the geography of the world by regions with emphasis on the world's landscapes as explained by natural and human processes. Fulfills elementary certification requirement for Education and General Studies requirement.

**GEO 160 LANDS AND PEOPLES OF THE NON-WESTERN WORLD.** (3)
This study of selected cultures of India, China, Southeast Asia, the Middle East, Africa, and South America will focus on topics such as languages, religions, food, and physical environment, with an emphasis on how specific non-Western cultural landscapes arise from the interactions of land, people, and culture.

**GEO 172 HUMAN GEOGRAPHY.** (3)
A study of the spatial distributions of significant elements of human occupance of the earth's surface, including basic concepts of diffusion, population, migration, settlement forms, land utilization, impact of technology on human occupance of the earth. (Fulfills elementary certification requirement for Education and University Studies requirement.)

**GEO 210 POLLUTION, HAZARDS, AND ENVIRONMENTAL MANAGEMENT.** (3)
An introduction to environmental systems such as weather and climate, vegetation, land forms and soils, and how the quality of these systems is modified by human use. Resource issues discussed include river flooding, damage, and controls; tornadoes; air and water pollution; living with earthquake danger; industry and mining; use of the world's forests; and nuclear energy. Case studies illustrating important environmental problems are presented with explanation of how human activity and environmental systems interrelate.

**GEO 222 CITIES OF THE WORLD.** (3)
Focuses on the historical development of urbanized settlement in major world regions and the geographic expressions of major world cities, their populations, economies, social character, and planning for the future. Problems of cities in developed and developing countries are examined.

**GEO 241 PHYSICAL LANDSCAPES.** (3)
Examination of the impacts of landforms on man and man on landforms at local and global scales. Topics discussed include how humans modify the earth's surface through agriculture, mining, urbanization, and highway construction; the impacts of natural hazards (droughts, hurricanes, floods, earthquakes, etc.) on human activities; cultural variations in the use and perception of land as a resource; landscape aesthetics, and preservation of physical landscapes. Prereq: GEO 130, or GLY 101 or 140, or consent of instructor.

**GEO 251 WEATHER AND CLIMATE.** (3)
Examination of the controls of climate, including air masses, ocean currents, altitude, continentality, and major patterns of precipitation and winds. Features of major climate regions are discussed. Prereq: GEO 130 or consent of instructor.

**GEO 256 BEHAVIOR IN SPACE AND TIME.** (3)
An examination of how space and time are organized and how space and time influence behavior. Included will be notions of territoriality, life-space and the meaning of space at the personal and social level. The course will explore implications of these concepts for important issues such as aging, stress and mental illness.

**GEO 260 THIRD WORLD DEVELOPMENT.** (3)
The course focuses on characteristics of developing countries as well as solution strategies to development problems and conditions. Cultural distinctions, traditions, and institutions are recognized as keys to development condition and progress. Selected theories show how cultural variations in language and religion may be used to explain development. Numerous case studies are discussed, including Indonesia, China, India, Brazil, Kenya, and Zimbabwe. Prereq: One of the following: ECO 202, GEO 152, GEO 160, GEO 172, or GEO 222.

**GEO 285 INTRODUCTION TO PLANNING.** (3)
An introduction to the history, purpose, and objectives of planning with emphasis on urban and regional planning, planning processes, techniques, and legislation.

**GEO 300 GEOGRAPHIC RESEARCH AND FIELD TECHNIQUES.** (4)
Introduces the student to the tools and methods utilized in geographic research and to the range of activities of professional geographers in education, government and the private sector. Students become familiar with field research problems and major types of data and methods of analysis in field research including survey of the evolution of concepts basic to geography. Prereq: GEO 130, 152, or 172.

**GEO 305 ELEMENTS OF CARTOGRAPHY.** (3)
Fundamental training in map drafting, compilation, symbolization, scales, projections, and map reproduction, including emphasis on the conceptual planning and designing of maps and graphs as a medium for communication.

**GEO 310 QUANTITATIVE TECHNIQUES IN GEOGRAPHY.** (3)
The application of spatial techniques geographers use to collect, sample, map, and analyze data in human and physical geography. Students will be introduced to automated data processing. Prereq: STA 200.

**GEO 320 GEOGRAPHY OF THE UNITED STATES AND CANADA.** (3)
A systematic review of the physical, economic, historic, and cultural characteristics that distinguish U.S. and Canadian regions. Topical emphasis on the geographical aspects of regional problems. Prereq: GEO 130 or 152 or 172, or consent of instructor.

**GEO 321 LAND, PEOPLE, AND DEVELOPMENT IN APPALACHIA.** (3)
Major themes revolve around regional diversity and regional development. Major topics examined include physical geography, historical development, economic geography, and population geography. The region to be examined includes the upland areas between Southern New York State and Northern Alabama. Prereq: GEO 130 or 152 or 172, or consent of instructor.

**GEO 322 GEOGRAPHY OF KENTUCKY.** (3)
A study of the cultural, economic and environmental characteristics of Kentucky. Emphasis is placed on Kentucky geography in a regional and national context. Prereq: GEO 130 or 152 or 172, or consent of instructor.

**GEO 324 GEOGRAPHY OF CENTRAL AND SOUTH AMERICA.** (3)
Examination of the diversity of physical environments in the region, how the processes of physical geography may affect human activity, how Indian cultures developed in varied environmental niches and have been impacted through contact with Europeans, and how current cultures utilize their environment to adapt to the influence of the world economy. Prereq: GEO 152 or 160 or 172.

**GEO 326 GEOGRAPHY OF EUROPE.** (3)
A study of the countries of Europe; their physical characteristics, their cultural endowments, and the expression of these in regional variations in the European landscape. Prereq: GEO 152 or 172.

**GEO 328 GEOGRAPHY OF THE MIDDLE EAST AND NORTH AFRICA.** (3)
A comprehensive overview of the region, emphasizing cultural adaptation to desert environments. The interrelationships among religions, cultures, and the physical environment will be examined. Prereq: GEO 152, GEO 160, GEO 172 or consent of instructor.

**GEO 329 GEOGRAPHY OF THE SOVIET UNION.** (3)
A study of the geography of the Soviet Union with emphasis on the role of socialist location theory, spatial decision making behavior, and ideology. Special consideration of resources and resource use, perception of the environment, and Marxist planning strategies. Prereq: GEO 152 or 172.

**GEO 330 GEOGRAPHY OF SOUTH ASIA.** (3)
A study of the human, economic, and environmental aspects of India, Pakistan, Bangladesh, Himalayan Nepal and Bhutan, and Sri Lanka. Topics include basic physical and cultural regionalisms, land use and population problems, and patterns of economic development involving urbanization, resources, and industrialization. Prereq: GEO 152 or 160 or 172.

**GEO 332 GEOGRAPHY OF SOUTHEAST ASIA.** (3)
A study of the cultural, economic, and political patterns and processes in mainland and insular Southeast Asia. Major themes examined are how the region's diverse physical geography, uneven natural resource base, cultural diversity, and colonial heritage provide a background to understanding contemporary development. Prereq: GEO 152 or 160 or 172.

**GEO 333 GEOGRAPHY OF EAST ASIA.** (3)
To provide an understanding of the relationships between the physical, historical-cultural, and economic geography of the nations of East Asia. Contemporary development and problems are addressed for the entire region. Primary emphasis on China and Japan. Prereq: GEO 152, GEO 160, GEO 172 or consent of instructor.

**GEO 336 GEOGRAPHY OF SUB-SAHARAN AFRICA.** (3)
A cultural approach to the geography of the region. This course covers the belief systems as well as the physical, economic, and social geography of Africa south of the Sahara. Emphasis is in cultural adaptations to African environments and present-day political problems. Prereq: GEO 152 or 160 or 172.

**GEO 355 ECONOMIC GEOGRAPHY.** (3)
Examines the locational patterns of economic activities including agriculture, industrial and energy resources, manufacturing, business, retailing, international trade, and the transportation circulation system that integrates these sectors. Emphasis is on the factors determining these patterns at all geographic scales from local to international. Prereq: GEO 152 or 172.

**GEO 360 URBAN GEOGRAPHY.** (3)
A study of the location and growth of cities, their internal characteristics, and the spatial aspects of urban social, environmental, and political problems. Emphasis is on basic concepts, models and theories used in urban geography. Prereq: A 100- or 200-level geography course or consent of instructor.

**GEO 405G CARTOGRAPHIC PRODUCTION AND DESIGN.** (3)
A course involving the modern techniques of designing, drafting and reproducing commercial quality, multi-color cartographics and graphics. Scribing, photocomposition, color-proofing and planning are the principal topics of study. Lecture, one hour per week; laboratory, four hours per week. Prereq: GEO 305.

**GEO 409G INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS.** (3)
An introductory investigation of the phenomenon of Geographic Information Systems (GIS), including theory and applications areas. A major portion of the course will be based on use of a current widely used GIS computer software system. Considered will be aspects of geographic data entry and editing, spatial analysis, and map development and display. Relationship of GIS to the Global Positioning System (GPS) and satellite generated data will be addressed. Prereq: Junior standing or permission of instructor.

**GEO 415 MAP INTERPRETATION.** (3)
An introduction to reading and interpreting maps. Special attention given to the study of physical and cultural geography as portrayed on large scale topographic maps. Emphasis on the relationship between the environmental setting and man's activities, surveys and boundaries, transportation, urban and rural settlement and land use, and place names. Prereq: GEO 130 or 172 or consent of instructor.

**GEO 420G URBAN AND REGIONAL PLANNING.** (3)
An analysis of urban and regional planning with emphasis on the contemporary urban and regional planning activities. Prereq: GEO 285 or consent of instructor.

**GEO 452G WORLD GEOGRAPHY FOR TEACHERS.** (3)
Approaches to teaching geographic themes and concepts within the context of the world's major regions and countries in grade levels K-12. Addresses those issues and problems that affect world regions in the context of the following broad themes: location, place, movement, regions, and human-environment interactions. Among those topics discussed are the use and importance of maps and related resource materials in instruction, presentation of themes at different grade levels, and identification and utilization of a broad range of reference materials for student and teacher use. Lecture, ten hours per week for four weeks.

**GEO 475G MEDICAL GEOGRAPHY.** (3)
An examination of the basic principles of medical geography and their significance in assessing morbidity and mortality patterns. The distribution and diffusion of selected major diseases are presented as well as their relationship to the environment. Historical and contemporary diseases are discussed including the plague, yellow fever, cancer, and heart disease. Prereq: GEO 172 or consent of instructor.

**GEO 480 PLANNING INTERNSHIP.** (3)
Professionally supervised field experience in public and private planning development agencies. Designed to introduce students to professional employment and actual planning practice. May be repeated to a maximum of six credits. Prereq: Six to nine hours of planning courses in geography or equivalent.

**GEO 490G AMERICAN LANDSCAPES.** (3)
A review of America's vernacular landscapes from the perspective of the history of settlement by Europeans, evolving political allegiances, the expansion of agricultural and industrial technologies in the context of America's diverse physical environments. Prereq: GEO 252 or consent of instructor.

**GEO 495 INTERNSHIP IN CARTOGRAPHY.** (6 or 9)
Professional commercial cartography laboratory experience. Awarded competitively. Student assumes an entry level position involving research, production, or pre-press experience under the direction of a corporate operations supervisor. Applicants should request a faculty or University Cartography Laboratory advisor to direct and record the student's experience for academic credit, and with the advisor's assistance, file a signed learning agreement with the department chair prior to the start of the internship. Available fall, spring, and summer sessions. Credit: six hours fall and spring; nine hours summer session. Pass-fail only. Students should apply to the Director of Undergraduate Studies at least sixty days before the beginning of each semester. Prereq: Major in geography, GEO 405G and 415. The following courses are also recommended: GEO 505, 506, 507 or 508.

**GEO 505 PRACTICUM IN CARTOGRAPHY.** (3)
Experience credit in which a small number of advanced students work under the direct supervision of the faculty or staff cartographer and in conjunction with other faculty members on departmental and contracted projects. May be repeated to a maximum of six hours. Prereq: GEO 305 and GEO 405; or GEO 506.

**GEO 506 INTRODUCTION TO COMPUTER CARTOGRAPHY.** (3)
This course is a basic introduction to numerical cartography and a review of standard computer mapping programs such as CMAP, SYMAP, and SYMVIEW. Emphasis is given to data compilation for machine presentation of cartographic information. Prereq: GEO 305 or permission of instructor.

**GEO 507 REMOTE SENSING IN GEOGRAPHY.** (3)
A course designed to acquaint the student with a variety of remote sensing techniques and their application in land-use mapping, urban change detection, inventory of natural resources, detection of environmental planning problems. The material is useful to those in agriculture, forestry, earth sciences, and urban studies. Prereq: GEO 305 or consent of instructor.

**GEO 508 GEOGRAPHIC INTERPRETATION OF AERIAL PHOTOGRAPHY.** (3)
Aerial photography is commonly used as a means of collecting information and enhancing the analysis of the earth's landscapes. This course provides the technical background necessary to use aerial photography in a research setting and includes the application of the techniques in specialized fields, including agriculture, forestry, geology, and urban studies. Prereq: GEO 305 or equivalent, or consent of instructor.

**GEO 509 APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS.** (3)
An intermediate course tailored to individual work. The student may either become familiar with several Geographic Information Systems (GISs) or may make intensive use of one system. Actual data will be used and actual spatial problems or issues will be addressed. The student will be responsible for data procurement and input, analysis design, and output production, including maps. May be repeated to a maximum of six credits. Prereq: An introductory GIS course (GEO 409G) or permission of instructor.

**GEO 542 POLITICAL GEOGRAPHY.** (3)
A study of politico-geographic phenomena in their areal context, such as the analysis of boundaries, geographical patterns resulting from the application of governmental authority, the political viability of state units, and the spatial (territorial) variations and interrelationships of political activities and systems.

**GEO 544 POPULATION GEOGRAPHY.** (3)
An analysis of population distributions, locational arrangements of growth, densities, and migration flows; spatial relationships between population variables and social, economic, and environmental factors.

**GEO 545 TRANSPORTATION GEOGRAPHY.** (3)
Examination of the bases for transportation and spatial interaction; structure, growth, and location of networks; analysis of spatial flows. Prereq: GEO 355 or permission of instructor.

**GEO 547 GEOGRAPHY OF INFORMATION AND COMMUNICATIONS.** (3)
The increasing role of information, communications, and telecommunications in the economic and social transformations in rural and urban areas. Topics include geographic influences on the growth of information industries, the diffusion of innovations and patterns in newspaper, radio and television systems on economic development, and impacts of satellites and computers on information availability. Prereq: GEO 172 or consent of instructor.

**GEO 550 GEOGRAPHY OF ENERGY AND NATURAL RESOURCES.** (3)
A study of the locational patterns of industrial mineral and energy resources, their uses, the major producers and consumers, resource management and mismanagement. Also the influence of institutional constraints on resource development, conservation efforts, and the implication of resource utilization for quality of the environment. Prereq: GEO 151 or 152 or consent of instructor.

**GEO 560 INDEPENDENT WORK IN GEOGRAPHY.** (3)
Individual research involving such problems as (1) materials and methods in teaching geography; (2) the historical evolution of geography; (3) map reading and interpretation; (4) special area studies; (5) other topics may be elected by consent of instructor. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

**GEO 565 TOPICS IN GEOGRAPHY.** (3)
Discussion, readings, and papers focusing on relevant topics in geography directed by a staff member having specific competence for the topics under study. Current research developments in particular geographic subfields will be stressed. May be repeated under different subtitles to a maximum of six credits. Prereq: Consent of instructor.

**GEO 585 AGING AND ENVIRONMENT.** (3)
Explores the elderly person's changing experience of environment. Physiological, psychological and social changes are related to adjustment within urban and rural community environments, special housing for the elderly, and long-term care environments. Prereq: Graduate or advanced undergraduate standing and consent of instructor. (Same as FAM 585.)

**GEO 600 ANALYTICAL METHODS IN GEOGRAPHY.** (3)
An introduction to the application of analytical methods to geographic problem solving. Topics cover sampling theory, probability theory and both parametric and nonparametric statistical techniques. Prereq: STA 570 or equivalent or consent of instructor.

**GEO 643 URBAN TRANSPORTATION PLANNING.** (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Prereq: CE 543 or equivalent and STA 381 or 681 or equivalent statistics course. (Same as CE 631.)

**GEO 655 SPECIAL STUDY OF SYSTEMATIC GEOGRAPHY.** (3)
The application of the methods of systematic geography to particular special studies in topical areas, such as conservation, urban areas, climatology, cartography, or others. May be repeated to a maximum of six hours. Prereq: Appropriate 500-level course work in systematic or topical geography (e.g., conservation, urban, climatology, cartography).

**GEO 700 ADVANCED ANALYTICAL METHODS IN GEOGRAPHY.** (3)
A survey of the application of multivariate statistical techniques to geographic problem solving. Prereq: GEO 600 or consent of instructor.

**GEO 702 CONCEPTS IN GEOGRAPHY.** (3)
Contemporary geographic concepts and theories are examined with emphasis on concepts within human geography, especially with reference to the economic, urban, cultural, and population subfields within the discipline. Prereq: Graduate student status.

**GEO 707 SEMINAR IN DEVELOPMENT OF GEOGRAPHIC THOUGHT.** (3)
An analytical review of the evolution of geographic thought, in terms of concepts, methodologies and scholars, emphasizing the basic literature through a series of topics. Prereq: Geography major or consent of instructor.

**GEO 710 RESEARCH METHODS AND METHODOLOGY IN GEOGRAPHY.** (3)
A comprehensive review of the problems involved in designing geographical research, planning field work, analysis of data, and in writing geographic reports. Prereq: GEO 560 or equivalent.

**GEO 716 TOPICAL SEMINAR IN CULTURAL GEOGRAPHY (Subtitle required).** (3)
Study of selected topics on historic preservation, landscape evolution, regionalism, ethnicity, religion, architecture, and settlement. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 717 TOPICAL SEMINAR IN ECONOMIC AND URBAN GEOGRAPHY (Subtitle required).** (3)
Examination of selected topics on location-allocation models, transportation development and impacts, industrial location, financial geography, urban growth, and postindustrial economies. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 718 TOPICAL SEMINAR IN GEOGRAPHY OF ENVIRONMENT AND RESOURCES (Subtitle required).** (3)
Study of selected topics on agriculture resource allocation, resource conflict, public land policy, natural hazards, environmental management, energy and biogeography. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 722 TOPICAL SEMINAR IN SOCIAL AND POLITICAL GEOGRAPHY (Subtitle required).** (3)
Examination of selected topics on diffusion of diseases, health care delivery, the elderly, geopolitics, the nation-state, elections, squatters, suburbs, and impacts of technological hazards. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 723 TOPICAL SEMINAR IN GEOGRAPHY OF THE THIRD WORLD (Subtitle required).** (3)
Study of selected topics on the cultural, economic, social, urban, political and environmental geography of Latin America, Middle East, Africa, South Asia, and Southeast Asia. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 740 INTERNSHIP IN APPLIED GEOGRAPHY.** (3)
Academically and professionally supervised field experience in specific areas of planning and applied geography, for example, in private industry and government. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**GEO 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**GEO 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**GEO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**GEO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**GEO 772 SPECIAL RESEARCH PROBLEMS IN GEOGRAPHY.** (1-6)
Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. May be repeated to a maximum of 12 credits. Prereq: Approval of the director of graduate studies.

## GER Germanic Languages and Literatures

**GER 011 GERMAN FOR READING KNOWLEDGE.** (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination, who need a reading knowledge of German in their minor, or who require a review of German grammar.

**GER 101 BASIC GERMAN.** (4)
Fundamentals of German with development of the four basic skills: reading, writing, listening, and speaking.

**GER 102 BASIC GERMAN.** (4)
Continuation of GER 101. Prereq: GER 101, or one year of high school German, or equivalent.

**GER 111 ELEMENTARY GERMAN.** (3)
The essentials of grammar with practice in reading and writing German (correspondence course).

**GER 112 ELEMENTARY GERMAN.** (3)
Continuation of GER 111 (correspondence course). Prereq: GER 111 or one year of high school German.

**GER 201 INTERMEDIATE GERMAN.** (3)
Systematic review of grammar and furthering of reading, writing, listening, and speaking skills based upon cultural and literary materials. Prereq: GER 102, or two years of high school German, or equivalent.

**GER 202 INTERMEDIATE GERMAN.** (3)
Continuation of GER 201. Prereq: GER 201 or three years of high school German, or equivalent.

**GER 205 READING AND WRITING PRACTICE.** (2)
This course concentrates on the development of reading and writing skills. Students learn to build vocabulary systematically and develop strategies for reading texts of varying kinds and levels of difficulty. Writing assignments ranging from brief descriptions and reports to translations and original compositions enable students to develop and sharpen writing skills. Prerequisite for upper division courses. Prereq or concur: GER 202 or equivalent.

**GER 206 ORAL PRACTICE.** (2)
This course concentrates on the development of speaking and listening skills. Students learn to negotiate everyday communication situations by acquiring verbal strategies and idiomatic expressions needed for meaningful interaction in a German-speaking environment. Prereq or concur: GER 202 or equivalent.

**GER 261 MASTERPIECES OF GERMAN LITERATURE IN TRANSLATION.** (3)
Focusing on major authors, the course traces the development of German literature along thematic lines. Representative works are read and discussed against the backdrop of German society, culture and intellectual history.

**GER 263 THE GERMAN CULTURAL TRADITION I.** (3)
An introduction to the social, intellectual and aesthetic traditions of German-speaking cultures from the Germanic past to the Enlightenment. Texts in English translation. Films with English subtitles to be viewed outside of regular class time.

**GER 264 THE GERMAN CULTURAL TRADITION II.** (3)
An introduction to the social, intellectual and aesthetic tradition of German-speaking cultures from the Enlightenment to the present. Texts in English translation. Films with English subtitles to be viewed outside of regular class time.

**GER 307 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION I.** (3)
This course develops listening, speaking and writing skills in German with emphasis on practical communicative needs. It includes a review of grammar, special oral and written projects, class discussion, and practice in a variety of written forms. Prereq: GER 205 or 206 or equivalent.

**GER 308 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION II.** (3)
Continuation of GER 307. Prereq: GER 307, or equivalent.

**GER 311 INTRODUCTION TO GERMAN LITERATURE: THEMES (Subtitle required).** (3)
An introductory course that explores such themes in German literature as Fathers and Daughters, Fathers and Sons, Trials, Judgments and Justice, and Conceptions of the Self. Readings will be drawn from various periods and major genres. Themes vary and will be announced. May be repeated once for a total of six credits by nonmajors if theme changes. Prereq: GER 205 or GER 206 or equivalent.

**GER 312 INTRODUCTION TO GERMAN LITERATURE: POPULAR FORMS.** (3)
An introductory course that focuses on social, political, anthropological and aesthetic aspects of popular forms of German literature. Readings include fairy tales, folk songs and legends, children's literature, detective stories, comics and other popular literary forms. Prereq: GER 205 or 206 or equivalent.

**GER 316 MASTERPIECES OF GERMAN LITERATURE II.** (3)
Continuation of GER 315. Taught in German. Prereq: GER 311 or 312 or equivalent.

**GER 317 HISTORY OF GERMAN CULTURE.** (3)
An introduction to German culture with emphasis on the epochs important to the development of modern German-speaking countries. Readings in German from philosophy, the sciences, the arts, history, politics and literature. Visual materials documenting high culture and everyday life. Taught in German. Prereq: GER 205 or 206 or equivalent.

**GER 319 CONTEMPORARY GERMAN LITERATURE AND CULTURE.** (3)
Selected works of post-war German literature by Austrian, East and West German, and Swiss authors are read relative to the economic, social, political, artistic and ideological developments in the four countries of the German-speaking world. Taught in German. Prereq: GER 205 or 206 or equivalent.

**GER 361 GERMAN CINEMA.** (3)
A history of the cinema in the German-speaking world from its beginnings to the present, emphasizing the evolution of the production, distribution and reception of film in relation to changing political, social, economic, ideological and literary/artistic contexts. Some consideration of film theory and criticism in conjunction with class discussion of individual films. Viewing of films (silent or German dialogue with English subtitles) outside of class is required. Class taught in English.

**GER 395 INDEPENDENT WORK IN GERMAN.** (3)
This course is designed for students who wish to do advanced work in German on any subject. May be repeated once. Prereq: Major and a standing of 3.0 in the department.

**GER 415G MAJOR GERMAN AUTHORS (Subtitle required).** (3)
The study of a single author or combination of authors in the social, political and cultural context of their day. Special concerns include the interrelationship between literary production and biography, and author's relation to literary tradition, and his or her historical as well as current relevance. May be repeated once to a maximum of six credits with a new author or complex of authors. Taught in German. Prereq: GER 311 or 312 or equivalent.

**GER 416G GENRES OF GERMAN LITERATURE.** (3)
The study of a particular genre in German literature with readings of representative examples and with inquiry into concepts of genre in general. May be repeated once to a maximum of six credits with emphasis on a different genre. Taught in German. Prereq: GER 311 or 312 or equivalent.

**GER 420G SPECIAL STUDIES IN GERMAN LITERARY AND CULTURAL HISTORY.** (3)
Intensive study of selected topics in German literary and cultural history, such as Fascism, War and Literature, Expressionism in Art and Literature, and German Women Authors: Behond Kinder, Küche, Kirche. Students are encouraged to propose topics. May be repeated once, if topic changes, for a maximum of six credits. Taught in German. Prereq: Senior standing or consent of instructor.

**GER 507 ADVANCED GERMAN COMPOSITION AND CONVERSATION.** (3)
Further development of conversational skill and practice in writing stylistically appropriate German. Study of finer points of grammar. Discussion of special topics and theme writing. Prereq: GER 308 or equivalent.

**GER 520 SPECIAL TOPICS SEMINAR.** (3)
Investigation of a topic pertinent to the advanced study of German language, literature and culture. May be repeated once with new topic. Prereq: GER 415G, 416G, 420G or equivalent.

**GER 532 HISTORY OF THE GERMAN LANGUAGE.** (3)
A survey tracing the development of German from its earliest stages to the present, with introduction to basic concepts of historical linguistics. Prereq: GER 308 or equivalent.

**GER 553 THE TEACHING OF GERMAN.** (3)
The course is designed for teachers and prospective teachers of modern foreign languages, with emphasis on German. Modern methodology, theory and practice of language pedagogy.

**GER 612 STUDIES IN LITERARY THEORY.** (3)
Course will explore such fundamental issues as the definition of literature, interpretation and evaluation, the reading process, and literary life from the perspective of competing theoretical systems.

**GER 615 STUDIES IN MAJOR AUTHORS.** (3)
Explorations into one or several major figures of German literature. Reading of primary texts and pertinent scholarship together with an investigation of the authors' literary, social, or political significance during contemporary or later periods. May be repeated to a maximum of 12 credits.

**GER 616 STUDIES IN GENRE.** (3)
One major genre or a group of related genres. Readings in genre theory and in the key texts from various periods; study of the development of forms, techniques, and ideas. May be repeated to a maximum of nine credits.

**Note:** The series of courses GER 620-630 provides a general framework for the systematic study of German literature in its cultural setting and delimits various issues to be investigated further in corresponding 700-level courses. Readings and discussions focus on documents central to the literary life of a given period and to the understanding of its institutional and biographical basis as well as its regional, sociopolitical, motivational, poetological, and ideological diversity. Each course also emphasizes critical methodology and tools of scholarship and identifies new directions for basic research.

**GER 620 STUDIES IN THE MIDDLE AGES.** (3)
From Carolingian times to the late Middle Ages.

**GER 624 STUDIES IN THE 17TH CENTURY.** (3)
The Age of Baroque.

**GER 625 STUDIES IN THE 18TH CENTURY.** (3)
Enlightenment to Classicism.

**GER 629 STUDIES IN THE 19TH CENTURY.** (3)
Romanticism to Naturalism.

**GER 630 STUDIES IN THE 20TH CENTURY.** (3)
Turn-of-the-century Modernism to the present.

**GER 653 RESEARCH AND ISSUES IN TEACHING GERMAN.** (1)
This course builds on GER 553, Methods of Teaching German. The course will address a range of educational issues beyond the teaching of foreign language skills as well as acquaint students with research methods in both a theoretical and practical manner. May be repeated to a maximum of four semesters. Coreq: GER 553.

**Note:** The course series 720-730 offers the opportunity for the more specialized and greater in-depth investigation of various topics encountered in the corresponding, but more broadly conceived, period courses of the 620-630 series. With changes in topic, each course number of the 720-730 series can be repeated a total of three times—thus enabling the student at the more advanced level to specialize within a particular period or periods.

**GER 729 SPECIAL TOPICS IN THE 19TH CENTURY.** (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

**GER 730 SPECIAL TOPICS IN THE 20TH CENTURY.** (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

**GER 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**GER 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**GER 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**GER 781 SPECIAL STUDIES IN GERMAN.** (3)
Selected studies and investigations in the German language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of 12 credits.

**SCANDINAVIAN**
(Offered as required)

**GER 141 SWEDISH I.** (3)
Introduction to Swedish with emphasis on grammar, pronunciation, reading and writing. Basic information on Swedish customs, history, geography, folklore. Students planning to fulfill part of a language requirement should be aware that the scheduling of Swedish III and IV will be subject to student demand and the availability of a qualified instructor.

**GER 142 SWEDISH II.** (3)
Continuation of Swedish I with additional emphasis on conversation. Prereq: GER 141 or equivalent.

**GER 610 OLD ICELANDIC.** (3)
Rapid coverage of morphology, phonology and syntax of Old Icelandic, with some attention to linguistic affinities within the Indo-European and Germanic groups of languages. Prereq: Reading knowledge of German; consent of instructor.

## GLY Geological Sciences

**GLY 101 PHYSICAL GEOLOGY.** (3)
A first course in the principles of physical geology, including study of minerals and rocks, volcanoes and earthquakes, plate tectonics and the landforms of Earth's surface. Concur: GLY 111.

**GLY 102 HISTORICAL GEOLOGY.** (3)
The history of Earth: its origin as part of the solar system, and the subsequent evolution of its atmosphere, continents, seas, and life as interpreted from the rock record. In addition to lecture illustrations, examples are presented by a three-hour field trip and several out-of-class exercises. Attention is given to the development of the basic principles used in interpretation. Prereq: GLY 101 and 111.

**GLY 111 LABORATORY FOR PHYSICAL GEOLOGY.** (1)
Identification of minerals and rocks in hand specimens, interpretation of landscape features as shown on topographic maps, and an introduction to geologic maps. Laboratory, two hours per week. Concur: GLY 101.

**GLY 112 LABORATORY FOR HISTORICAL GEOLOGY.** (1)
Interpretation of geological maps and cross-sections, and elementary study of important invertebrate fossil groups. One three-hour field trip required. Laboratory, two hours per week. Prereq or concur: GLY 102.

**GLY 140 GENERAL PHYSICAL GEOLOGY.** (4)
A first course in the principles of physical geology, including topics from mineralogy, geochemistry, and geophysics. High school chemistry recommended. Lecture, three hours; laboratory, two hours. (Offered in Community College System only.)

**GLY 142 GENERAL HISTORICAL GEOLOGY.** (4)
A first course in historical geology, including a study of the development of earth's fundamental features and a review of the history of life. Lecture, three hours; laboratory, two hours per week. Prereq: GLY 140 or 144. (Offered in Community College System only.)

**GLY 202 DINOSAURS AND DISASTERS.** (3)
More than 65 million years ago, dinosaurs and their kin dominated the earth and relegated our mammalian ancestors to positions of unimportance for nearly 155 million years. This course traces the history of dinosaurs from early vertebrate ancestors to their final extinction and surveys the evolutionary, paleogeographic, environmental, and possible extraterrestrial causes for the rise to dominance and sudden fall. Along the way, dinosaur interactions with other organisms, various groups, and the new revolutionary view of dynamic, hot-blooded dinosaurs will be examined. Prereq: GLY 101/111.

**GLY 210 THE FINITE EARTH: AN INTRODUCTION TO ECONOMIC GEOLOGY.** (3)
An introduction to the geology of earth resources (economic geology) including metals, industrial minerals, building materials, nuclear fuels, and fossil fuels: their origin, occurrence, distribution, methods of exploration and production, and global consumption. Prereq: GLY 101/111.

**GLY 225 FIELD METHODS IN GEOLOGY.** (3)
An introduction to methods of observation, measurement, and mapping of rocks and structures in the field, including geologic map interpretation, hand specimen examination, and reporting skills in geology. Laboratory or field work, nine hours per week. Prereq or concur: GLY 101 and 111, GLY 102 and 112.

**GLY 240 ELEMENTARY GEOLOGY FOR ENGINEERS.** (3)
An introduction to geologic materials and processes with emphasis on their application to engineering practice. Lecture, two hours; laboratory, three hours; one field trip required. Prereq or concur: CE 106.

**GLY 242 ENDANGERED PLANET: AN INTRODUCTION TO ENVIRONMENTAL GEOLOGY.** (3)
Introduction to the study of the environment from a geological standpoint. An emphasis is placed on how man lives with hazards such as earthquakes, volcanoes, and floods and attempts to predict such events. Environmental problems that arise from the utilization of resources are examined, as are ways in which pollution problems could be minimized. Course material is presented in a way that allows the student to apply basic geologic concepts to current environmental issues. Prereq: GLY 101/111.

**GLY 260 MINERALOGY.** (4)
The introductory study of minerals including classification, crystallography, physical and chemical properties, occurrence, association, and identification. Laboratory work includes study of hand specimens and optical methods of identification. Lecture, three hours; laboratory, three hours per week. Prereq: GLY 101 and 111, CHE 105.

**GLY 341 LANDFORMS.** (3)
A study of the origin and distribution of landforms. Lecture, three hours; laboratory, two hours substituted for some lectures. Prereq: GLY 101 and GLY 111 or equivalent or GEO 151.

**GLY 395 SPECIAL PROBLEMS IN GEOLOGY.** (1-3)
Individual work on a special problem in geology. Report required. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**GLY 401G INVERTEBRATE PALEONTOLOGY AND EVOLUTION.** (3)
Basic ecologic and evolutionary framework of common fossil invertebrate taxa. Major principles of paleontology, ecology, systematics, and evolution; and the use of fossils in paleoecology and biostratigraphy. Laboratory work in classification of common fossils. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 102/112.

**GLY 420G STRUCTURAL GEOLOGY.** (4)
An introduction to earth structures. Advanced geologic map interpretation. Prereq: GLY 225 or GLY 240, and PHY 201 or PHY 211 or PHY 231, or consent of instructor.

**GLY 423 FIELD WORK IN REGIONAL GEOLOGY.** (6)
Geologic mapping in the field for a six-week period. Description, measurement, and mapping of a wide variety of rocks and structures, and analysis of geologic events in mountainous regions of the Rockies or Appalachians. Includes practice in writing geologic field reports. Offered only during the summer session. At least 40 hours of field-related work per week. Special fee. Prereq: GLY 225, GLY 420G and GLY 450G or consent of instructor.

**GLY 430 ENVIRONMENTAL GEOHYDROLOGY.** (3)
A course dealing with the occurrence and movement of water on and beneath the land surface, and its place in the hydrosphere, emphasizing the geologic perspective. Prereq: MA 113 or MA 123, three hours of physics, and GLY 242.

**GLY 450G STRATIGRAPHY AND SEDIMENTATION.** (3)
Basic principles and concepts of stratigraphy and sedimentation. Lithologic correlation and the interpretation of geologic history and paleogeography. Field and laboratory analysis of sedimentary rocks including megascopic and microscopic methods. Lecture, two hours; laboratory, two hours. Prereq: GLY 102 or equivalent course in historical geology.

**GLY 461 IGNEOUS AND METAMORPHIC PETROLOGY.** (4)
Classification and origins of the common igneous and metamorphic rocks. Lecture material will emphasize the mineralogical, chemical, and physical equilibria within the earth. Laboratory topics will stress hand-specimen and microscopic petrography. Lecture, three hours; laboratory, three hours per week. Prereq: GLY 260.

**GLY 470 SENIOR SEMINAR (Subtitle required).** (1)
A required seminar course for majors in the geological sciences. Each semester's seminar will be organized around a central theme chosen from research topics of wide interest in the geological sciences at the time. Presentations will be judged on the basis of oral skills and content. May be repeated to a maximum of two credits. Prereq: Senior standing in a Geological Sciences curriculum.

**GLY 511 PETROLEUM GEOLOGY.** (3)
The origin and accumulation of petroleum and natural gas. A study of geological methods used in exploratory work. Geology of principal producing fields. Prereq: GLY 450G.

**GLY 513 REMOTE SENSING AND AERIAL PHOTOGRAPHY.** (3)
Geological applications of remote sensing methods including aerial photography and satellite imagery in the visible and infrared wavelengths to geologic structure, mapping, mineral exploration and mine reclamation. Principles of aerial photography, structural and false color enhancement systems, side looking radar, the production of photo mosaics and photo maps and the planning of exploration programs using remote sensing. Lecture, two hours; laboratory, two hours per week. Prereq: GLY 144, GLY 420G, or consent of instructor.

**GLY 515 GENERAL COAL GEOLOGY.** (3)
The environments of coal deposition, nature of the coal substance and associated sedimentary rocks, and structural geologic phenomena as bases for understanding the distribution and quality of coal and predicting coal mining conditions. Field trips required. Lecture, two hours; laboratory, two hours per week. Prereq: GLY 420G, GLY 450G, or consent of instructor.

**GLY 530 LOW TEMPERATURE GEOCHEMISTRY.** (3)
An introduction to sedimentary and environmental geochemistry, including carbonate equilibria, coal and petroleum geochemistry, and the geochemistry of aqueous contaminants. Prereq: GLY 260 and MA 114 or consent of instructor.

**GLY 540 ADVANCED GENERAL GEOLOGY.** (3)
An advanced course for geological sciences majors serving to integrate information from more specialized upper division courses into the framework of the geological sciences, with special emphasis on a global view. Prereq: Geological sciences major with senior standing.

**GLY 552 SEDIMENTARY PETROLOGY.** (3)
Detailed description of sedimentary rock types, their origin and classification. Megascopic and microscopic examination of textures and structures of sediments. Mineralogy of sediments and the significance of sedimentary environments. Lecture, two hours; laboratory, two hours. Prereq: GLY 260 and STA 291 or STA 370.

**GLY 555 STRATIGRAPHY.** (3)
Principles of stratigraphy, depositional systems, sequence stratigraphy, and tectonic framework of sedimentation. Prereq: GLY 552.

**GLY 570 SEMINAR IN GEOLOGICAL SCIENCES (Subtitle required).** (1)
A general seminar in a broad range of topics in the geological sciences. May be repeated to a maximum of six credits under different subtitles. Prereq: GLY 470 or graduate standing in Geological Sciences.

**GLY 571 APPLICATION OF POTENTIAL METHODS IN APPLIED GEOPHYSICS.** (3)
A review of electrical, gravity, and magnetic field methods used in exploration geophysics. Course includes an assigned field problem involving geophysical techniques. Lecture, two hours; laboratory, two hours. Lectures are presented more frequently when field trips are not scheduled. Prereq: MA 114 and PHY 231.

**GLY 572 EXPLORATION SEISMOLOGY.** (3)
An introduction to exploration seismology with emphasis on the fundamentals of gathering, processing and interpretation of seismic data. The course includes the application of ray theory, Fourier and Z-transforms, and spatial filtering techniques as used in seismic exploration. Prereq: MA 114 and PHY 231.

**GLY 575 GEODYNAMICS.** (3)
A quantitative review of deformation and heat transfer processes encountered in the study of the earth's crust and upper mantle. Prereq: PHY 211 or 201, MA 114 and GLY 420G.

**GLY 579 GROUNDWATER GEOPHYSICS.** (3)
Application of geophysical methods to groundwater exploration, emphasis is placed on the use of potential fields in the analysis of groundwater aquifers. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 365 or consent of instructor.

**GLY 585 HYDROGEOLOGY.** (3)
A study of the physical aspects of groundwater, including regional flow, well hydraulics, and computer simulation. Prereq: GLY 101 and MA 114.

**GLY 602 PALEOECOLOGY.** (3)
Synthesis of paleontology, sedimentology, and stratigraphy in the interpretation of past organism-environment relationships. One four-day field trip required. Lecture, two hours; laboratory, two hours. Prereq: GLY 401 or consent of instructor.

**GLY 617 ORGANIC PETROLOGY.** (3)
The geochemical and paleobotanical origin of coal macerals and kerogen. Topics will include: petrology of coal and peat; organic metamorphism; petrology of dispersed organics, including oil shales; inorganic constituents in coal and organic-rich shales; and applications to industrial and geologic problems. Prereq: GLY 515 or consent of instructor.

**GLY 620 TECTONICS.** (3)
A study of the structural features of the earth's crust with an analysis of the mechanics involved. Prereq: PHY 211, 213; GLY 420G.

**GLY 624 MESOSCOPIC STRUCTURES.** (3)
The analysis of structures of mesoscopic and microscopic scales in deformed rocks and their extrapolation to large scale structures. Emphasis is placed on mechanisms, kinematics, and processes. Topics include: strain analysis in shear zones; microstructural evolution of mylonites; rock rheology; deformation mechanisms in the continental crust. One four-day field trip required. Prereq: GLY 420G.

**GLY 628 BASIN ANALYSIS SEMINAR.** (3)
Methods of analysis of large sedimentary volumes from the point of view of mineral exploration. Prereq: Consent of instructor.

**GLY 640 ANALYTIC METHODS IN GEOLOGY.** (3)
Review of computer methods, statistics, and data processing in geologic research. Discussion of topics relating to the conduct of investigations, including experimental design, analytic techniques, and the organization and presentation of results. Prereq: Consent of instructor.

**GLY 652 ADVANCED STRATIGRAPHY.** (3)
A study of dynamic stratigraphy emphasizing the integration of tectonic paleoclimatic and paleogeographic frameworks to explain the origin, nature, distribution and relationship among Paleozoic stratigraphic sequences and unconformities across central portions of the North American continent. One three-day field trip required. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 450G or equivalent.

**GLY 670 SELECTED TOPICS IN GEOPHYSICS.** (3)
Study of topics of current interest in geophysics. Subject matter will vary from term to term. May be repeated to a maximum of 12 credits. Lecture, two hours; laboratory, two hours. Prereq: GLY 571 or 572.

**GLY 671 EARTHQUAKE SEISMOLOGY.** (3)
A study of wave propagation and earthquake phenomena stressing both theory and delineation of earth structure. Lecture, two hours; laboratory, two hours. Prereq: GLY 572.

**GLY 703 PALEOECOLOGY/PALEONTOLOGY SEMINAR (Subtitle required).** (1-3)
Discussion and study of advanced topics in paleoecology or paleontology and related fields. One or more field trips required. May be repeated to a maximum of six credits. Prereq: GLY 602 or equivalent or consent of instructor.

**GLY 715 COAL GEOLOGY SEMINAR.** (2)
Seminar discussion and presentation of current work in coal geology from current literature or ongoing research. May be repeated to a maximum of eight credits. Prereq: GLY 515 or 617 or consent of instructor.

**GLY 720 GRADUATE TECTONICS SEMINAR.** (3)
Discussion and study of advanced topics in tectonics. May be repeated to a maximum of 12 hours. Prereq: GLY 620 or consent of instructor.

**GLY 741 CLAY MINERALOGY.** (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, three hours. Prereq: GLY 260 or consent of instructor. (Same as AGR 741.)

**GLY 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**GLY 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**GLY 750 SEDIMENTOLOGY/STRATIGRAPHY SEMINAR (Subtitle required).** (1-3)
Discussion and study of advanced topics in sedimentology or stratigraphy emphasizing current problems or topics pertinent to the sedimentology or stratigraphy of Kentucky and adjacent areas. One or more field trips required. May be repeated to a maximum of six credits. Prereq: GLY 450G, 552, or consent of instructor.

**GLY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**GLY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**GLY 780 MODELING IN HYDROGEOLOGY.** (3)
Seminar in modeling and computational algorithm hydrogeology. Two or three computer modeling programs are applied to hydrogeological programs. May be repeated to a maximum of six credits. Prereq: GLY 685.

**GLY 782 INDIVIDUAL WORK IN GEOLOGY.** (1-3)
Problems involving independent laboratory and/or library study conforming to the student's special interest under the direction of an appropriate staff member having proficiency in the area selected. May be repeated to a maximum of nine credits. Prereq: Geology major with graduate standing.

**GLY 787 RESEARCH IN HYDROGEOLOGY AND LOW-TEMPERATURE GEOCHEMISTRY.** (3)
Laboratory and/or field research, literature study, discussion, and/or reports in one or both of these fields selected on the basis of the student's needs. May be repeated to a maximum of nine credits. Prereq: GLY 530, GLY 655, and consent of instructor.

**GLY 790 RESEARCH IN GEOLOGICAL SCIENCES.** (0-6)
Research in the geological sciences. May be repeated to a maximum of twelve credits. Prereq: Approval of instructor and Director of Graduate Studies.

## GRN Gerontology

**GRN 513 GERIATRIC PHARMACY.** (3)
A course designed to educate students in the basic knowledge of attitudes and skills required to meet the pharmaceutical needs of the elderly. Topics include discussions of the aging process, physiological and psychological changes in the elderly, how these changes influence patient compliance and the responses to drug and nondrug treatments, monitoring drug use in long-term care facilities, and special community services available to the elderly. Prereq: PHR 849, 852, 853, 854 and 856 or permission of instructor. (Same as PHR 813.)

**#GRN 600 A STUDY OF THE OLDER PERSON.** (3)
This will be a didactic/experimental course designed to give the student an overview of the effects of the aging process of the individual person. Didactic lectures will focus on the psychological, social and biological impact of aging. The experimental component will consist of having the students interact with healthy elderly individuals from Donovan Scholars Program, the Sanders-Brown subject registry, and individuals suffering from diseases related to aging.

**#GRN 610 AGING AND BIOMEDICAL ETHICS.** (3)
This seminar will address the dominant medico-ethical issues surrounding the elderly. The issues will include concerns for the autonomy of the elderly; competency and decisional impairment; surrogate health care decision making; the role of families and elderly relatives; ethical and legal issues regarding the use of life-sustaining procedures such as mechanical ventilation, resuscitation and DNR orders, and nutritional support and hydration; decisions to enter nursing home and rights of nursing home residents; costs of health care to the elderly and costs of long term care; and critical ethical issues in conducting research involving elderly persons.

**GRN 612 BIOLOGY OF AGING.** (3)
A multidisciplinary discussion of how the process of aging affects biological systems. Coverage will be quite broad and includes topics such as subcellular and cellular aging, genetics, immunology, anatomy and physiology, animal model of aging, etc. Prereq: Enrollment in a graduate program of a biomedical science department or consent of instructor. (Same as BIO 612.)

**#GRN 620 HUMAN AGING AND ADJUSTMENT.** (6)
The second core course of the Gerontology Ph.D. program is designed to provide students with an holistic examination of human aging and health. Five broad focal themes, combining perspectives from the biomedical and the social and behavioral sciences, will provide the framework for this course. These themes include the historical context of aging, theories of aging, individual experience of aging, aging of societies, and aging and health.

**GRN 643 BIOMEDICAL ASPECTS OF AGING.** (3)
A survey of the normal age-associated changes in biological function, the major disease entities found in the older population, and how the health care delivery system presently addresses these issues. Prereq: Graduate status or permission of the instructor. (Same as SW 643.)

**#GRN 650 RESEARCH METHODS IN GERONTOLOGY.** (3)
This course will provide training in research methods appropriate for the study of aging and the aged and will critically assess special considerations involved in studying this population. Topics to be covered will include: data sources for research on aging (including medical informatics and clinical epidemiology sources; the use of animal models in aging research; research designs for the study of aging [reconciling age, period, and cohort effects]: longitudinal research; measurement tools for assessing the elderly [functional assessment, ADLs, life satisfaction scales, etc.]) issues in interviewing older people; qualitative methods in aging research; the ethics of research on aging and the aged. Prereq: STA 570 or equivalent.

**#GRN 710 AGING OF THE NERVOUS SYSTEM.** (3)
This course will examine the alterations in the brain that occur with aging and in neurodegenerative disorders such as Alzheimer's disease. The emphasis will be on human aging although the relevance of animal models to studies of human aging will be a recurrent theme. The course will examine aging at several levels, including molecular, cellular, organismic, and behavioral. Prereq: GRN 620. A strong background in the basic sciences.

**#GRN 715 HEALTH POLICY AND AGING.** (3)
This course will present an overview of health policy in the United States as it affects the older population. It will provide an overview of the health care system, allocation of health services across the population and projected impact of the increase in the aging population on health care delivery. Various health care policy proposals will be analyzed with a focus on their impact on the older population. Prereq: GRN 600 and GRN 620.

**#GRN 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following successful completion of the qualifying exams.

**#GRN 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**#GRN 780 APPLIED RESEARCH PRACTICUM I. (1)**
This course is designed to provide students an opportunity to serve as an intern within a clinic, service agency or organization which provides services to older persons. The student will gain in-depth experience in the organization and an introduction to problems in applied research. The course will be taken in conjunction with GRN 790 Integrative Research Seminar in Gerontology I. Prereq: GRN 600, GRN 620, GRN 650.

**#GRN 781 APPLIED RESEARCH PRACTICUM II. (1)**
The course provides an opportunity for students to serve as an intern in a clinic, service agency or organization which provides services to older persons. Students will identify a research problem within the organization and complete a research project. The course will be taken in conjunction with GRN 791 Integrative Research Seminar in Gerontology II. Prereq: GRN 780.

**#GRN 785 INDEPENDENT RESEARCH IN GERONTOLOGY. (3)**
Independent research involving completion of a major research project resulting in a manuscript of publishable quality. Under the supervision of a Gerontology Program faculty member, this will involve review of appropriate literature, problem formulation, research design, data collection, data analysis and report writing on a topic in gerontology. Prereq: GRN 600 and GRN 620.

**#GRN 790 INTEGRATIVE RESEARCH SEMINAR I. (3)**
This seminar will involve students and gerontology program faculty in in-depth exploration of major health and aging-related issues. The substantive focus will be a series of specific topical problems, such as health care access, housing, long-term care, preventive health care, etc. The problem areas will be explored from a variety of disciplinary perspectives. Prereq: Extensive research methods background.

**#GRN 791 INTEGRATIVE RESEARCH SEMINAR II. (3)**
This seminar is the second in a two-course sequence focusing on selected topics in aging. In this segment, students will participate in a research seminar team. A major gerontological issue with multidisciplinary implications (e.g. stroke, Alzheimer's disease, etc.) will be identified. Each member of the seminar team will identify a particular aspect of the topic and conduct a research project. Each member's findings will be integrated into a comprehensive research report on the topic. Prereq: GRN 790.

## GS The Graduate School

**GS 600 SPECIAL TOPICAL GRADUATE COURSE. (1-3)**
An interdisciplinary, topical or experimental course to be approved by the Dean of the Graduate School. A particular course can be offered no more than twice under the number GS 600. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

## HA Health Administration

**HA 600 EPIDEMIOLOGY. (3)**
A study of the natural history of disease.

**HA 601 OVERVIEW OF THE HEALTH CARE DELIVERY SYSTEM. (3)**
An introduction to the health care delivery system in the United States, including its composition, functioning, the interrelationships of organizations and professional groups within the system in various settings, health care terminology, and major problems and issues in the delivery of health services. Prereq: MHA/MPA program status. (Same as PA 671.)

**HA 602 STRATEGIC PLANNING AND MANAGEMENT OF HEALTH CARE ORGANIZATIONS. (3)**
This course is designed to focus on the future needs of the health care organization as contrasted to day-to-day operational management. Topics include basic strategic planning theory, the process of strategic plan development, specific methods of analysis including environmental and organizational analysis and appropriate analytical techniques. Several health care trends such as restructuring, innovation in health care delivery and financing and performance measurements will be illustrated through case analysis in a variety of provider settings. Prereq: MHA status and HA 601, HA 621 and HA 642.

**HA 603 LEGAL ASPECTS OF HEALTH ADMINISTRATION. (3)**
The course will familiarize students with the application of law to management issues in health care organizations. Skills including terminology, legal reasoning, the tools of law, and topics specific to the health care setting are addressed. Prereq: MHA program status and HA 601.

**HA 621 QUANTITATIVE METHODS OF RESEARCH. (3)**
A survey of behavioral science research methods for the public administrator. Emphasis is placed upon problem selection and identification, research design, and data analytic techniques. Prereq: MPA or MHA program status; prereq or concur: completion of MPA or MHA computer skills program requirement. (Same as PA 621.)

**HA 622 MENTAL HEALTH ADMINISTRATION. (3)**
This course focuses upon the administration of local mental health agencies, facilities and coordination of deinstitutionalization programs, e.g., group houses, halfway houses. The course will focus upon system coordination, finance and communication. Prereq: MHA/MPA program status.

**HA 624 QUALITY METHODS AND INFORMATION SYSTEMS IN HEALTH CARE. (3)**
This course will focus on the total quality management (TQM) concept and its applicability to health services organizations. The information systems and statistical central techniques required to support the effort will be covered along with the history of the Quality Assurance (QA) function. Prereq: HA 601, HA 621 and HA 635.

**HA 632 PUBLIC FUNDS MANAGEMENT. (3)**
A study of the management of public funds including the accumulation, management and investment of such funds and the accounting for those transactions. It will also include topics such as fund accounting, cash forecasting, cash management practices and public funds investment strategies. Prereq: MPA or MHA program status; prereq or concur: completion of MPA or MHA computer skills program requirement. (Same as PA 632.)

**HA 635 MANAGEMENT ACCOUNTING FOR HEALTH CARE ORGANIZATIONS. (3)**
This course is designed to introduce the use of management accounting techniques to decision making in health care organizations. Lectures, problems and cases will be used to provide an opportunity to focus on the various types of health care providers. Prereq: MHA/MPA program status and HA 601 and HA 621.

**HA 636 HEALTH ECONOMICS. (3)**
This course applies general theoretical principles of economics to the health care sector. The basic approach is to recognize the importance of scarcity and incentives, allowing for differences peculiar to health. The demand and supply of health and medical care are examined as they involve physicians, nurses and hospitals. The competitiveness of their markets, health insurance and the role of government are explored. Special topics include regulation and planning, benefit-cost analysis, and reform health plans. Prereq: PA 652, HA 601, HA 621, MHA or MPA program status. (Same as ECO/PA 636.)

**HA 637 HEALTH FINANCE. (3)**
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: MHA/MPA program status and HA 601, HA 621, PA 623, HA 635. (Same as FIN/PA 637.)

**HA 642 PUBLIC ORGANIZATION THEORY AND BEHAVIOR. (3)**
A course which examines the interaction of both external and internal resources and constraints upon the administrative decision processes in a number of public organizational settings. The objective is an understanding of the practice of administration in public organizations. Prereq: MPA or MHA program status and HA 601. (Same as PA 642.)

**HA 652 PUBLIC POLICY ECONOMICS. (3)**
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA or MHA program status and HA 601 and HA 621. (Same as ECO/PA 652.)

**HA 656 HEALTH PROGRAM EVALUATION. (3)**
A study of the tools necessary for planning and evaluating health programs: planning systems, needs assessment methodologies, data analysis skills, the epidemiologic method, effectiveness and efficiency evaluation. An overview of trends and requirements leading to increased emphasis on planning and program accountability. Prereq: MHA/MPA program status, HA 601, HA 621, PA 623, and HA 635. (Same as PA 656.)

**HA 660 DECISION MAKING IN HEALTH CARE ORGANIZATIONS. (3)**
This course is designed to build on the concepts and techniques introduced in the MHA curriculum and integrate them with a decision making focus in a variety of health care problems and settings. Case analysis will be used extensively to develop an opportunity for the student to learn to apply the appropriate skills to an unstructured environment. Prereq: MHA program status and must be taken in last semester of MHA program studies.

**HA 673 HEALTH POLICY DEVELOPMENT. (3)**
An analysis of the development and implementation of health policy on a national, state, local and organizational level. The course will focus on issue and policy analysis, formal and informal processes of policy development and the issues, values, and political and community factors affecting policy development and program implementation. Prereq: HA 601 and one of the following courses: HA 611, 621, or 622 and MHA/MPA program status. (Same as PA 673.)

***HA 711 RESIDENCY IN HEALTH ADMINISTRATION. (3)**
Practical field experience in a health administrative setting under the direction of an academic and a workplace supervisor. Prereq: MHA/MPA program status.

**HA 775 SPECIAL TOPICS IN HEALTH ADMINISTRATION. (1-3)**
An analysis of selected issues with special significance for health administration. Prereq: MPA/MHA program status. (Same as PA 775.)

**HA 785 INDEPENDENT STUDY IN HEALTH ADMINISTRATION. (1-3)**
Supervised individual research on a topic related to health administration selected by the student. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as PA 785.)

## HDI Human Development Institute

**#HDI 600 INTERDISCIPLINARY APPROACHES TO THE NEEDS OF CHILDREN WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS. (2)**
This course provides a base of core knowledge and experience in interdisciplinary services and supports for children with disabilities and/or special health care needs and their families. This course is structured in an interdisciplinary seminar format, illustrating the application of each discipline's expertise to the needs of children with disabilities and their families. Lecture, three hours per week. Prereq: Graduate standing.

**#HDI 601 INTERDISCIPLINARY APPROACHES TO THE NEEDS OF CHILDREN WITH DISABILITIES AND SPECIAL HEALTH CARE NEEDS: PRACTICUM. (2)**
This course provides the experiential basis for HDI 600. Participants engage in a wide range of structured site visits and other university-based clinical and community-based learning experiences, related to services and supports for children with disabilities and/or special health care needs and their families. Lecture, one hour; laboratory, three hours per week. Prereq: Graduate level standing and acceptance in MCH Leadership Program; concurrent enrollment in HDI 600.

**#HDI 602 INTERDISCIPLINARY SUPPORTS. (2)**
This course will build on the disciplinary clinical competence of participating students and enhance their knowledge and skills related to specific issues regarding the needs of children with disabilities and other special health care needs. Topics covered include: Epidemiology, Prevention of Developmental Disabilities, Micro Environment, Early Intervention, School Age and Adult Issues, Cultural Diversity, the Rural and Underserved Population, Politics, Law and Health Care Reform Issues and Advocacy. Prereq: Graduate standing, completion of HDI 600.

**#HDI 603 INTERDISCIPLINARY SUPPORTS PRACTICUM. (2)**
This core course for the HDI-UAP-MCH Interdisciplinary Training Program will provide the experiential base for HDI 602. The course will include practica experiences in interdisciplinary assessments, as well as a long-term individualized student practicum. The practicum seminars will focus upon problem-solving strategies in providing high quality supports to children and youth with disabilities and their families. Lecture, one hour every two weeks; laboratory, 12 hours per week. Prereq: Graduate standing, completion of HDI 600 and 601, concurrent enrollment in HDI 602.

**#HDI 604 INTERDISCIPLINARY LEADERSHIP SEMINAR. (2)**
This course will provide a base of core knowledge and experiences in leadership, systems change, strategic planning, proposal development, group facilitation, conflict resolution, and interagency collaboration principles and strategies. These topical areas effectively represent key functions for those who would assume leadership roles in promoting inclusive, community supports for children with disabilities and their families. The course will utilize faculty and Institute staff from a wide range of disciplines. Prereq: Graduate standing, consent of instructor.

**#HDI 605 INTERDISCIPLINARY LEADERSHIP PRACTICUM. (2)**
This culminating core course for the HDI-UAP-MCH Interdisciplinary Training Program will provide the experiential base for HDI 604. This course will include the trainee's individually designed leadership project. As a final requirement for this course, the student will be required to develop a Leadership Project Summary, and make a class presentation on the Leadership Project. Laboratory, ten hours per week. Prereq: HDI 600. 601, 602, 603; and concurrent enrollment in HDI 604.

## HEE Home Economics Education

***HEE 210 INTRODUCTION TO VOCATIONAL EDUCATION. (3)**
The history, status, philosophy, and objectives of vocational education in relation to general education. (Same as AED 210.)

***HEE 362 PRACTICUM IN VOCATIONAL EDUCATION, AGRICULTURAL COMMUNICATIONS, AND LEADERSHIP. (3)**
Supervised experiences in schools, businesses and agencies. Required of all Agricultural Education, Communications, Leadership and Home Economics Education majors. Includes observation, participation, experience, field trips, inspection of programs and professional organizations. May be repeated to a maximum of nine credits. Prereq: Junior standing. (Same as AED/AGC/SOC 362.)

***HEE 501 PRACTICUM IN VOCATIONAL EDUCATION. (1-12)**
Planned and supervised practicum in teaching, extension, governmental agencies, etc. Requires the integration of observation skills, development and use of objectives, using instructional strategies, developing effective interpersonal skills, using appropriate communication skills, developing a portfolio, selecting instructional materials, and evaluating instruction. Regularly scheduled seminars included as an integral part of course. May be repeated to a maximum of 12 credits. Prereq or concur: HEE/AED 586 or consent of instructor. (Same as AED 501.)

***HEE 535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION. (3)**
Study is made of philosophy, accepted principles, and legislation affecting programs in vocational education. (Same as AED 535.)

***HEE 580 METHODS OF TEACHING VOCATIONAL EDUCATION I. (3)**
Development of teacher competency in methods of teaching with emphasis on the problem-solving procedure and use of demonstrations, field trips, and audiovisual materials; evaluation of teaching-learning principles, studies of facilities and instructional materials needed in a vocational education program. Prereq: Permission of instructor. (Same as AED 580.)

***HEE 586 METHODS IN TEACHING VOCATIONAL EDUCATION II. (3)**
A study of teaching methods, curriculum development, basic skills integration, utilization of resources, working with special needs students, and professional responsibilities of the vocational education teacher. Prereq: Consent of instructor. (Same as AED 586.)

***HEE 590 PROBLEMS IN VOCATIONAL EDUCATION. (3)**
Problems in teaching vocational education for high school students and adults. May be repeated twice for a maximum of nine credits. Prereq: Permission of instructor. (Same as AED 590.)

***HEE 670 ADVANCED METHODS IN TEACHING VOCATIONAL EDUCATION. (3)**
The principles of method applied to teaching in the field of vocational education. Prereq: Experience in teaching vocational education. (Same as AED 670.)

***HEE 671 YOUTH ORGANIZATIONS IN VOCATIONAL EDUCATION. (3)**
A study of the underlying philosophy and principles for organizing and advising youth organizations in vocational education. Emphasis to be placed on activities which will enrich and motivate the instructional programs and which will develop leadership, cooperation and citizenship. (Same as AED 671.)

***HEE 672 CURRICULUM CONSTRUCTION IN VOCATIONAL EDUCATION. (3)**
A study of the principles of curriculum building with an emphasis on development of curriculum in home economics and agriculture education from middle school to adult levels. (Same as AED 672.)

***HEE 678 SELECTING TEACHING MATERIALS. (3)**
Selection and organization of specific references and other instructional materials to be used in teaching an area of vocational education. (Same as AED 678.)

***HEE 679 ADULT EDUCATION IN VOCATIONAL EDUCATION. (3)**
Preparation for teaching adult classes in vocational education including organization of classes, development of curriculum, and methods of teaching. (Same as AED 679.)

***HEE 680 DIRECTING EXPERIENCE PROGRAMS IN VOCATIONAL EDUCATION. (3)**
Directing experience programs including projects, activities, internships, and co-op education. Such areas as setting standards, planning, supervision, records, and evaluation will be discussed. (Same as AED 680.)

***HEE 684 CURRENT TRENDS IN VOCATIONAL EDUCATION. (3)**
Class work in current trends and significant developments in vocational education. May be repeated to a maximum of nine credits. (Same as AED 684.)

***HEE 686 EVALUATION IN VOCATIONAL EDUCATION. (3)**
A course to acquaint teachers of vocational education with techniques used in measuring attainment in vocational education in middle and high school, college, and adult education. Prereq: Teaching experience. (Same as AED 686.)

***HEE 694 THE ADMINISTRATION OF VOCATIONAL EDUCATION. (3)**
A course designed for superintendents, high school principals, and other administrators. Its purpose is to train for administering and supervising vocational education in schools. (Same as AED 694.)

***HEE 695 SPECIAL PROBLEMS IN VOCATIONAL EDUCATION. (3)**
An independent work course for students interested in vocational education. Students make individual investigations and report on special problems. (Same as AED 695.)

***HEE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours. (Same as AED 768.)

***HEE 779 SEMINAR IN VOCATIONAL EDUCATION. (1-3)**
A critical study of selected problems in vocational education. The course is open only to students with experience in the field. May be repeated to a maximum of nine credits. (Same as AED 779.)

***HEE 789 INDEPENDENT WORK IN VOCATIONAL EDUCATION. (1-3)**
An independent work course for students who have completed a minimum of 12 semester hours of graduate work, one-half of which must have been in vocational education. May be repeated to a maximum of nine credits. (Same as AED 789.)

***HEE 799 RESEARCH IN VOCATIONAL EDUCATION. (1-3)**
Individual research of importance to vocational education. May be repeated to a maximum of nine credits. (Same as AED 799.)

## HES Human Environmental Sciences

**HES 100 AN INTRODUCTION TO PROFESSIONS IN HUMAN ENVIRONMENTAL SCIENCES. (1)**
An orientation to human environmental sciences, its contemporary issues, national development and philosophy, unifying concepts, areas of specialization, unique elements, leaders and professional organizations.

**HES 300 SPECIAL COURSE IN HUMAN ENVIRONMENTAL SCIENCES (Subtitle required). (1-3)**
Interdisciplinary, topical or experimental course to be approved by the appropriate department chairperson and by the Dean of the College of Human Environmental Sciences. Open to all University students, subject to limits or prerequisites set by the instructor. May be repeated to a maximum of six credits.

**#HES 320 SURVEY OF AGRICULTURE AND CONSUMER MEDIA. (3)**
An exploration of the social, political, and economic factors that influence how agricultural producers and consumers receive information through the media. In addition, the course will analyze how the general mass media cover agricultural and consumer topics. (Same as AGC 320.)

**HES 400 CONCEPTS IN HUMAN ENVIRONMENTAL SCIENCES: INTEGRATION AND APPLICATION. (2)**
Interdisciplinary approach to the solution of family and individual problems. Application of concepts from the developmental, relational, managerial, nutritional, and environmental studies within the college and support disciplines. Prereq: HES 100, senior standing in the College of Human Environmental Sciences, and consent of instructor (via permit).

**HES 596 SPECIAL PROBLEMS IN HUMAN ENVIRONMENTAL SCIENCES. (1-3)**
Intensive work on specific topics in human environmental sciences. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**HES 600 RESEARCH METHODOLOGY IN HUMAN ENVIRONMENTAL SCIENCES. (3)**
Students will study scientific techniques and accepted research methodologies in human environmental science research. Emphasis is placed on understanding the research process and developing the skills necessary to evaluate and implement research methods and design procedures. Prereq: Graduate standing. (Same as DMT 600.)

**HES 786 ADVANCED PROBLEMS IN HUMAN ENVIRONMENTAL SCIENCES. (1-3)**
Advanced work in specific topics in human environmental sciences. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

## HIS History

**I. INTRODUCTORY COURSES**

**HIS 104 A HISTORY OF EUROPE THROUGH THE MID-SEVENTEENTH CENTURY. (3)**
This course is a survey of the development of European politics, society, and culture through the Age of Religious Conflict.

**HIS 105 A HISTORY OF EUROPE FROM THE MID-SEVENTEENTH CENTURY TO THE PRESENT. (3)**
This course is a survey of the development of European politics, society, and culture from the Age of Absolutism to the present. It is a continuation of HIS 104.

**HIS 106 WESTERN CULTURE: SCIENCE AND TECHNOLOGY I. (3)**
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period to the Industrial Revolution.

**HIS 107 WESTERN CULTURE: SCIENCE AND TECHNOLOGY II. (3)**
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period since the Industrial Revolution.

**HIS 108 HISTORY OF THE UNITED STATES THROUGH 1865. (3)**
This course traces the nation's development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers' certificate.

**HIS 109 HISTORY OF THE UNITED STATES SINCE 1865. (3)**
A continuation of HIS 108, from 1865 to the present.

**HIS 120 THE WORLD AT WAR, 1939-45. (3)**
A global overview of the events of the Second World War, including consideration of the conflict's military, diplomatic, political, social and economic dimensions.

**II. UNDERGRADUATE SEMINARS, STUDIES AND INDEPENDENT WORK**

**HIS 316 JUNIOR SEMINAR: HISTORICAL METHOD AND LITERATURE. (3)**
An introduction to research and writing in the field of history with attention given to the problems of historical thought and interpretation. Preferably to be taken during the first semester of the junior year. Required of all history majors.

**HIS 330 A HISTORY OF WESTERN RELIGIOUS THOUGHT (I). (3)**
A history of Judeo-Christian religious thought from the rise of Judaism through the Protestant Reformation.

**HIS 331 A HISTORY OF WESTERN RELIGIOUS THOUGHT (II). (3)**
The history of Judeo-Christian religious thought from the Protestant Reformation to present.

**HIS 350 TOPICS IN U.S. HISTORY BEFORE 1789. (3)**
Readings, research, and discussions in seminar format to illuminate problems of historical and contemporary significance, in areas of special faculty competence. May be repeated once. Lecture, two hours; conference, one hour. Prereq: Consent of instructor mandatory.

**HIS 351 TOPICS IN U.S. HISTORY SINCE 1789. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 352 TOPICS IN EUROPEAN HISTORY BEFORE 1789. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 353 TOPICS IN EUROPEAN HISTORY SINCE 1789. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 354 TOPICS IN NON-WESTERN HISTORY BEFORE 1789. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 355 TOPICS IN NON-WESTERN HISTORY SINCE 1789. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 356 TOPICS IN HISTORY. (3)**
Same as HIS 350. Prereq: Consent of instructor mandatory.

**HIS 395 INDEPENDENT WORK. (1-3)**
Under special conditions selected students may investigate problems with weekly reports to the instructor. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

**HIS 397 RESEARCH SEMINAR FOR SENIORS. (3)**
A seminar for senior history majors, which provides the opportunity to prepare a substantial research paper within a topical or chronological area announced by the instructor. May be repeated to a maximum of six credits. Prereq: HIS 316 and a 3.0 GPA in history courses or consent of instructor.

**HIS 516 ORIGINS OF THE SCIENTIFIC WORLD VIEW. (3)**
Ideas of natural order and man's place in the cosmos, the interactions of man and environment, the relationships of scientific thought and cultural values, from the ancients to the 18th century. Prereq: HIS 106 or consent of instructor.

**HIS 595 STUDIES IN HISTORY. (3)**
Professors will offer lecture and discussion courses in areas in which they have special teaching interest. May be repeated to a maximum of six credits. Prereq: To be denoted by the instructor.

**III. NON-WESTERN HISTORY**

**A. AFRICA**

**HIS 254 HISTORY OF SUB-SAHARAN AFRICA. (3)**
A survey of the social institutions, value systems and political organization of Sub-Saharan Africa since the 16th century but with particular emphasis on the 19th and 20th centuries.

### B. LATIN AMERICA

**HIS 206 HISTORY OF COLONIAL LATIN AMERICA, 1492 to 1810.** (3)
A broad survey of the social, economic, political and cultural development of Latin America from the fifteenth century to 1810. Includes analysis of such topics as pre-Columbian societies on the eve of conquest, the Iberian kingdoms in the Age of Expansion, the conquest and colonization of the indigenous cultures of the New World, the establishment of Spanish and Portuguese institutions, the relations between the Church and the State, the encomienda and the hacienda, slavery and the impact of the Bourbon Reforms on America.

**HIS 207 HISTORY OF MODERN LATIN AMERICA, 1810 TO PRESENT.** (3)
A broad survey of the Latin American nations focusing on their social, economic, political and cultural development. Traces the history of the Independence movements, nation building, the struggle for modernization, dependency and the phenomenon of revolution in the twentieth century.

**HIS 561 THE INTELLECTUAL AND CULTURAL HISTORY OF LATIN AMERICA.** (3)
Following a brief survey of Latin American intellectual and cultural history from the Wars of Independence to the present, the course will center on specific topics such as modernism, liberalism, positivism, the resistance of indigenous peoples to Westernization, the novel, currents in historiography, the impact of Marxism, the development of the fine arts. Prereq: HIS 207 or LAS 201.

**HIS 562 MODERN MEXICO.** (3)
Following a brief survey of Mexican political history from Independence to the present, this course will examine topically major historical themes, such as landholding and agrarian problems, church and state, and assessment of the 1910 Revolution. Prereq: LAS 201 or equivalent or consent of instructor.

### C. MIDDLE EAST

**HIS 247 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 500-1250, A.D.** (3)
A survey of the origins and development of the Islamic civilization from the time of the Prophet Muhammad to 1250, with special concentration on the role of the Arab, Iranian and Turkic peoples.

**HIS 248 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 1250 TO THE PRESENT.** (3)
A continuation of HIS 247. A survey of the religion and institutions of the Islamic world in the Middle East with special emphasis on the Mongol, Ottoman, Safavid and Qajar empires. The demise of these empires, the response of the Middle East peoples to European imperialism, and their national development up to the present will be considered.

**HIS 548 HISTORY OF THE MIDDLE EAST: 1880-1952.** (3)
The history of Middle East countries—Iran, Turkey, Israel, Jordan, Lebanon, Iraq, Saudia Arabia. Emphasis is on the demise of the Ottoman Empire, origin of nationalist movements, French and British imperialism, the creation of Israel, and the religion and politics of Islam.

**HIS 549 HISTORY OF THE MIDDLE EAST: 1952 TO THE PRESENT.** (3)
A continuation of HIS 548. Emphasis is on the politics of Middle Eastern nationalism, Pan-Arabism and its demise, the Arab-Israeli conflict, the politics of oil and nuclear weapons, the Islamic revolution in Iran, and the development of the Islamic movement since 1967.

### D. EAST ASIA

**HIS 295 EAST ASIA TO 1800.** (3)
A survey of Chinese, Japanese and Korean history from earliest times to 1800. Emphasis on political, economic, social and intellectual developments.

**HIS 296 EAST ASIA SINCE 1800.** (3)
A continuation of HIS 295. A survey of the political and economic modernization of traditional East Asian society with emphasis on nationalistic reactions to Western pressure and international rivalry in East Asia.

**HIS 590 JAPANESE HISTORY TO 1800.** (3)
A broad survey of Japanese history from the earliest times to the zenith of shogunate rule under the Tokugawa family. In addition to tracing the major developments in Japanese political, social, and economic history, this course also emphasizes Shinto, Buddhism, Confucianism, and the introduction of Christianity.

**HIS 591 JAPANESE HISTORY SINCE 1800.** (3)
A continuation of HIS 590, from 1800 to present.

**HIS 593 EAST ASIAN HISTORY SINCE WORLD WAR II.** (3)
A study of the revolutionary political, economic and social changes occurring in China, Japan, and Korea in the aftermath of World War II. Important political and institutional developments and their relations to pre-war trends will be emphasized.

**#HIS 597 WESTERNERS IN EAST ASIA, 1839 TO THE PRESENT.** (3)
The history of interactions between the peoples of East Asia and those of Europe and North America in the nineteenth and twentieth centuries. The actions and goals of merchants, diplomats, missionaries, journalists, and soldiers will be examined, and such concepts as colonialism, imperialism, and cultural change will be discussed.

**#HIS 598 CHINA IN REVOLUTION, 1895-1976.** (3)
After a brief survey of modern Chinese history, this course explores the ideas which inspired the people who organized China's Nationalist and Communist parties and examines the social conditions which influenced the outcome of the Chinese civil war. The course also covers the attempts of some Chinese Communists to "continue the Revolution" after 1949.

## IV. EUROPEAN AND BRITISH HISTORY

### A. SCIENCE AND WESTERN CULTURE

**HIS 390 TECHNOLOGY AND CULTURE.** (3)
Interaction of technology and culture with illustrations from the classical, medieval, Renaissance, Enlightenment, 19th century, and modern periods; also non-Western cultures. Emphasis on the character of the interactions. Prereq: HIS 106 or HIS 107 or consent of instructor.

**HIS 504 GREEK AND ROMAN MEDICINE.** (3)
An historical introduction to the development of Greek and Roman medicine, from the pre-Socratic philosophers through Oribasius and early medieval influences. Prereq: A course in ancient history, or classics, or ancient philosophy, or consent of instructor.

### B. EAST EUROPE AND RUSSIA

**HIS 285 HISTORY OF RUSSIA TO 1825.** (3)
A broad survey of the life of the Russian people and the development of the state from the ninth century through the reign of Alexander I. Although emphasis will be placed on political, economic, and social trends, cultural and intellectual achievements will also be discussed.

**HIS 286 HISTORY OF RUSSIA SINCE 1825.** (3)
A continuation of HIS 285, this course covers the last century of the Tsarist regime (1825-1917) and the evolution of the Soviet system that followed. Emphasis will be placed on the problems that led to the collapse of the monarchy, on the revolutionary movement, and on the Communist state and society under Lenin and Stalin.

***HIS 534 RUSSIA IN THE 20TH CENTURY I.** (3)
A survey of the reign of Nicholas II (1894-1917), the Revolutionary and Civil War period (1917-1921), and the consolidation of the Soviet regime through the period of Stalin's first Five Year Plan in 1932.

***HIS 535 RUSSIA IN THE 20TH CENTURY II.** (3)
A continuation of HIS 534, this course examines the principal features of Soviet society under Stalin's dictatorship and the evolution of Soviet internal and external policy under his successors.

**HIS 536 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA TO 1800.** (3)
A study of Russian culture to 1800 emphasizing Slavic paganism, Orthodox Christian culture in Kiev, Novgorod, and Muscovy, and the impact of the West in the Seventeenth and Eighteenth Centuries.

**HIS 537 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA FROM 1800 TO THE PRESENT.** (3)
A study of Russian culture from 1800 to the present emphasizing the conservative as well as the revolutionary tradition, the Russian avant-garde, Stalinist culture, and the Dissident Movement.

**HIS 538 MARXISM: THE HISTORY OF SOCIALISM AND COMMUNISM.** (3)
The life and thought of Karl Marx will be emphasized. Other topics include Marxism in Europe to 1914 and the rise of Communism on a world scale after the Bolshevik Revolution in Russia.

**HIS 546 THE BYZANTINE EMPIRE.** (3)
A study of Byzantine history from the time of Constantine the Great to the capture of Constantinople by the Turks in 1453. Prereq: HIS 104 or 247.

**HIS 547 HISTORY OF THE OTTOMAN EMPIRE: 1200-1923.** (3)
A survey and study of the origins, consolidation, decline, and demise of the Ottoman Empire. Special emphasis will be placed on the empire's relationship with the Slavic peoples of the Balkans, Iran, the Arabs and Europe.

### C. BRITAIN AND THE BRITISH EMPIRE

**HIS 202 HISTORY OF BRITISH PEOPLE TO THE RESTORATION.** (3)
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad.

**HIS 203 HISTORY OF THE BRITISH PEOPLE SINCE THE RESTORATION.** (3)
From the Stuart period to the present. A continuation of HIS 202.

**HIS 552 BRITISH SOCIAL HISTORY DURING THE TUDOR-STUART PERIOD.** (3)
A study of the effects of demographic and economic changes upon life in town and country, with emphasis upon changing social aspirations.

**HIS 553 EIGHTEENTH CENTURY BRITAIN.** (3)
An analysis of English society and politics in an important transition period when the country was transformed by the Industrial Revolution and challenged by the French Revolution.

**HIS 554 BRITISH HISTORY 1815-1901.** (3)
A detailed study of Britain's political, social, diplomatic and industrial development in the 19th century.

**HIS 555 BRITISH HISTORY SINCE 1901.** (3)
A detailed study of Britain in the 20th century with special consideration of Britain in World War I and World War II, and her position in the contemporary world.

### D. WESTERN EUROPE

**HIS 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT.** (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon. (Same as CLA 229.)

**HIS 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE.** (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic world, the Roman Republic, and the Roman Empire to the death of Constantine. (Same as CLA 230.)

**HIS 270 EARLY MIDDLE AGES.** (3)
A survey of European history from the fourth through the mid-10th centuries.

**HIS 271 LATER MIDDLE AGES.** (3)
A survey of European history from the mid-10th through the 15th centuries.

**HIS 323 THE HOLOCAUST.** (3)
This course will attempt to help students understand the events that resulted in the virtual destruction of Europe's Jews during the Second World War. Topics will include the history of anti-semitism, the ways in which Nazi policy against the Jews was implemented, Jewish resistance, response of non-Jews and other governments to the Holocaust.

**HIS 500 PRECLASSICAL AND CLASSICAL GREECE.** (3)
A history of Greece from earliest times to the death of Alexander the Great.

***HIS 501 FOURTH-CENTURY GREECE AND THE HELLENISTIC WORLD.** (3)
A history of Greece and the Greek world from the death of Alexander to the Roman conquest of Egypt.

**HIS 502 A HISTORY OF THE ROMAN REPUBLIC.** (3)
A history of Rome from earliest times to the fall of the Republic. Emphasis will be placed upon the territorial expansion of Rome and the effects of this expansion on republican institutions.

***HIS 503 A HISTORY OF THE ROMAN EMPIRE.** (3)
A study of the foundation of the Roman Empire, the development of Imperial institutions, social and intellectual developments of the Graeco-Roman world. The decline of Rome and the barbarian invasions of the fourth century.

***HIS 509 ROMAN LAW.** (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. (Same as CLA 509.)

**HIS 510 MEDIEVAL CIVILIZATION I.** (3)
Selected topics in the cultural and intellectual history of Latin Europe during the Middle Ages. The specific topics for a given semester will be listed in the schedule book.

**HIS 511 MEDIEVAL CIVILIZATION II.** (3)
A continuation of HIS 510. The specific topics for a given semester will be listed in the class schedule book.

**HIS 512 MEDIEVAL INSTITUTIONS TO THE MID-10TH CENTURY.** (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the fourth century to the breakup of the Carolingian Empire.

**HIS 513 MEDIEVAL INSTITUTIONS SINCE THE MID-10TH CENTURY.** (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the beginning of the High Middle Ages to the middle of the 15th century.

**HIS 519 THE ERA OF THE RENAISSANCE.** (3)
An historical description and analysis of the development of political, economic, social, religious, intellectual and cultural institutions of Europe from Petrarch to Erasmus.

**HIS 520 THE ERA OF THE REFORMATION.** (3)
An historical description and analysis of the development of the religious, intellectual, cultural, political, economic and social institutions of Europe from Luther to the Treaty of Westphalia.

***HIS 521 EUROPEAN SOCIAL HISTORY, 1400-1800.** (3)
Survey of European social history in the early modern period, including analysis of demographic patterns, family and social structures, rural and urban economic patterns, and cultural and religious attitudes.

**HIS 522 THE FRENCH AND EUROPEAN REVOLUTIONS, 1760-1815.** (3)
A study of the origins and development of the French Revolution and the influence of the Revolution and Napoleon on Europe.

**HIS 524 EUROPEAN DIPLOMACY 1870-1918.** (3)
An analysis of diplomatic policy of the great continental powers in the period indicated. Domestic developments are considered when appropriate to an understanding of international affairs. Prereq: HIS 105 or consent of instructor.

**HIS 525 EUROPEAN DIPLOMACY SINCE 1918.** (3)
A study of the origins and consequences of the two World Wars with special emphasis on diplomatic affairs and the impact of modern totalitarianism on them. Prereq: HIS 105 or consent of instructor.

**HIS 526 EUROPE SINCE WORLD WAR II.** (3)
An examination of significant developments and changes in Western European states since 1940. Among the problems considered are political growth, evolution of diplomatic policy, European integration, and disarmament. Prereq: HIS 105 or consent of instructor.

***HIS 533 MODERN EUROPEAN IMPERIALISM.** (3)
A comparative analysis of the motives, policies and sociopolitical effects of European overseas expansion in the 19th and 20th centuries.

***HIS 540 HISTORY OF MODERN FRANCE TO 1815.** (3)
The course of French history to 1815, including the development of French political, administrative, legal, social, economic and cultural achievements and institutions and their contribution to the modern world.

**HIS 541 HISTORY OF MODERN FRANCE SINCE 1815.** (3)
Continuation of HIS 540.

**HIS 542 GERMAN HISTORY 1815-1914.** (3)
This course is designed as a study of domestic development in Germany. While political history is emphasized, due consideration is given to social, economic and intellectual trends. Prereq: HIS 104, 105 or consent of instructor.

**HIS 543 GERMAN HISTORY SINCE 1914.** (3)
Examines the fall of Imperial Germany, the Weimar Republic, Hitlerian period, and the post-1945 era. The course is primarily concerned with internal affairs, but attention is directed to the international scene when crucial. Prereq: HIS 104, 105 or consent of instructor.

**V. AMERICAN HISTORY.**

**HIS 240 HISTORY OF KENTUCKY.** (3)
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present.

**HIS 260 AFRO-AMERICAN HISTORY TO 1865.** (3)
A study of the Black experience in America through the Civil War. An examination of the African heritage, slavery, and the growth of Black institutions.

**HIS 261 AFRO-AMERICAN HISTORY 1865-PRESENT.** (3)
This course traces the Black experience from Reconstruction to the Civil Rights Movement of the 1960's. The rise of segregation and the ghetto and aspects of race relations are examined.

**HIS 265 HISTORY OF WOMEN IN AMERICA.** (3)
History of American women, with particular emphasis on the mid-19th through the mid-20th centuries. Major themes include the family, work, social ideas about women, and feminism. Prereq: HIS 109 or consent of instructor.

**HIS 460 COLONIAL AMERICA TO 1763.** (3)
This course explores a number of important themes in early America: the comparative view of Western European colonization efforts; the dynamics of a multiracial environment; the character of family, community and religious life; regional distinctiveness in social/economic life; and the maturation of the colonies in the 18th century.

**HIS 461 THE AMERICAN REVOLUTION, 1763-1789.** (3)
A study of the disagreement between Great Britain and the 13 colonies, the decision for independence, and the progress of revolutionary change through the ratification of the Federal Constitution.

**HIS 462 THE NEW REPUBLIC, 1789-1820.** (3)
An intensive study of the launching of the federal government, the rise of America's first parties, and the conflict over the completion of the revolutionary experiment.

**HIS 463 EXPANSION AND CONFLICT, 1820-1860.** (3)
A social and political study of the United States from 1820 to 1860, with special attention to the growth of Jacksonian democracy, territorial expansion, and the rise of the sectional controversy over slavery.

**HIS 464 CIVIL WAR AND RECONSTRUCTION, 1860 TO 1877.** (3)
A study of events immediately preceding the outbreak of conflict, of the military campaigns, and of the social, economic, and political developments during the periods of war and reconstruction.

**HIS 465 EMERGENCE OF MODERN AMERICA, 1877-1917.** (3)
A study of the transformation of the U.S. from an agrarian society into an industrial nation covering the years from the Gilded Age to the American entry into World War I. This course emphasizes the growth of corporate capitalism, the emergence of modern political institutions, and the development of modern American foreign policy. It also explores how various Americans— workers, farmers, immigrants, women— responded to and were affected by industrialization.

**HIS 466 MODERN AMERICAN HISTORY FROM WW I TO PEARL HARBOR, 1917-1941.** (3)
A study of America in World War I and the interwar era, emphasizing political, economic, diplomatic, and social developments. The course examines the impact of the first world war and the great depression on America and the nature of the New Era and the New Deal.

**HIS 467 MODERN AMERICAN HISTORY SINCE 1941.** (3)
An intensive study of the United States from the American entry into World War II to the present, emphasizing diplomatic, military, political, economic, and sociocultural changes.

**HIS 505 ETHNOHISTORY OF THE NATIVE AMERICAN SOUTHEAST.** (3)
This course employs the methodology of ethnohistory, which asks ethnographic questions of historical evidence, to study Native peoples of the Southeastern U.S. from prehistoric times to the present. (Same as ANT 505.)

**#HIS 568 NATIVE AMERICAN HISTORY: THE EAST.** (3)
This course studies the histories of the Native Americans of the Woodlands cultural tradition residing east of the Mississippi from the time of their encounter with Europeans to the end of removal in the 1840s. It uses an ethnohistorical approach that rests heavily on the insights of archaeologists and cultural anthropologists as well as historians. Its primary purpose is to identify and explain the political, economic, social and cultural responses of Native people as they were exposed to the diseases, invasions, settlements, economic and political systems, and religions of the Europeans.

**HIS 572 AMERICAN LEGAL HISTORY.** (3)
A history of law in the United States, emphasizing interrelationship of law and society. Particular attention given to law and economic growth, the criminal justice system, legal reform, the bar, and minorities and the law.

**HIS 573 AMERICAN CONSTITUTIONAL HISTORY.** (3)
A study of constitutional development in the United States from the colonial period to current times, with emphasis on the Supreme Court.

**HIS 574 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES TO 1919.** (3)
A survey designed to acquaint the student with the principles of American foreign policy and its historical evolution. Prereq: HIS 108 or equivalent.

**HIS 575 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES SINCE 1919.** (3)
A continuation of HIS 574. Foreign policy after the United States became a world power. Prereq: HIS 109 or equivalent.

**#HIS 576 FRONTIER AMERICA, 1400-1869.** (3)
A study of the ways in which America's people shaped and were transformed by the frontier; how they wrestled with the problems of nationhood, democracy, sacrifice, and innovation; and how the idealism and promise were fulfilled and betrayed, from the first settlers to the driving of the Golden Spike.

**#HIS 577 FRONTIER AMERICA, 1869-PRESENT.** (3)
A survey of the many Westerners, women as well as men, Native Americans, Chinese, and Hispanics as well as whites, sodbusters as well as six-shooters, and of the many Wests, wild and not-so-wild, from the prairie homesteaders to the Sagebrush Rebellion; and how they made, inherited, and were imprisoned by the frontier heritage.

**HIS 578 HISTORY OF THE OLD SOUTH.** (3)
A study of the colonial beginnings and expansion of southern life, economics, and society. The growth of slavery, staple agriculture, and sectional politics will constitute the major interest. Prereq: HIS 108.

**HIS 579 HISTORY OF THE NEW SOUTH.** (3)
The evolution of southern life and society, agrarian politics, relationships with other sections, industrial growth, and new leadership.

**HIS 580 HISTORY OF APPALACHIA.** (3)
A survey of the social, economic, and cultural history of Appalachia from the colonial period to the present with emphasis on the interaction of this social state region with the broader forces of social change at work in modern America. Prereq: HIS 108, 109 or consent of instructor.

**HIS 581 U.S. URBAN HISTORY SINCE 1865.** (3)
A study of urban America since 1865, emphasizing the impact of cities in the development of the United States, the processes by which cities grew and the effects of urbanization on city dwellers.

**HIS 582 IMMIGRATION AND AMERICAN HISTORY, 1815 TO THE PRESENT.** (3)
A study of the role of the immigrant in American history, emphasizing the impact of large scale immigration upon the receiving society and changes effected by the migration upon the new arrivals themselves, in the century after 1815, and the consequences of restriction in the decades since World War I.

**HIS 583 SCIENCE IN AMERICAN SOCIETY.** (3)
This course will explore how many Americans, scientists and nonscientists, have felt about science. Topics will include the specialization and professionalization of scientific activity; controversial theories with profound social impact; and the 20th century alliance of government, private enterprise, and science.

***HIS 584 HEALTH AND DISEASE IN THE U.S.** (3)
Examines the emergence of modern medicine and the allied health professions, from colonial times to the present. Emphasis will be placed on the social, institutional, and scientific contexts of medical thought, education, and practice. It also explores how social and professional thought and action shape the meaning of health and disease.

**#HIS 585 THE AGE OF JIM CROW, 1880-1930.** (3)
This course focuses on the causes, progression, completion and perfection of the color caste system popularly known as Jim Crow during the late nineteenth and early twentieth centuries. The course will examine the national and Southern milieu in which Jim Crow was born and justified as well as the impact of the system on the black community according to class and socio-economic status. Prereq: HIS 260 and HIS 261 or consent of instructor.

**#HIS 586 THE IMAGES OF BLACKS IN AMERICAN SOCIETY.** (3)
This lecture course focuses on the images, stereotypes, and caricatures of African Americans in American society from the era of the American Revolution to the late 20th century. We will examine not only white-produced images and representations of African-Americans but black-produced images as well. We will also examine the image of blacks in popular culture and in the electronic and print media and their impact on American race relations and as a reflection of historical trends. Finally, we will also examine the impact of these images within the black community. Prereq: HIS 260 and HIS 261 or consent of instructor.

**HIS 596 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE.** (3)
A study of American family experience and values from its pre-industrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as FAM 509, SOC 509.)

**THE GRADUATE GROUP**

**SEMINARS**

These seminars are designed to acquaint students with the problems, sources and secondary literature in the designated fields in order to prepare them for the graduate written and oral examinations.

***HIS 606 HISTORICAL CRITICISM.** (3)
Required of every entering graduate student in history. For history graduate students only.

**HIS 613 READINGS IN EARLY MEDIEVAL HISTORY.** (3)
The problems, major sources and secondary literature in the period from the beginning of the fifth century to the end of the 10th century will be covered. Primary emphasis will be given to the Latin West. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another.

**HIS 614 READINGS IN HIGH AND LATE MEDIEVAL HISTORY.** (3)
Major source collections, selected problems and the secondary literature concerning these problems will be covered, from the middle of the 10th century to the end of the 15th century. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another.

**HIS 615 READINGS IN HISTORY OF SCIENCE AND MEDICINE (THROUGH THE RENAISSANCE).** (3)
An intensive study of bibliography and analytical reading of secondary literature for the areas of Antiquity, Middle Ages, and Renaissance. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**HIS 622 READINGS IN EUROPEAN HISTORY, 1500-1815.** (3)
This course is designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. May be repeated to a maximum of six credits if offered under a different instructor or if the topical coverage is sufficiently different. Prereq: An undergraduate course in European history.

**HIS 623 READINGS IN EUROPEAN CULTURAL HISTORY SINCE 1815.** (3)
A critical survey of problems and literature on cultural and ideological movements of the 19th and 20th centuries. Among the topics to be considered are: revolution, industrialization, romanticism, imperialism, fascism, and total war. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another. Prereq: An undergraduate course in European history.

**HIS 624 READINGS IN EUROPEAN POLITICAL AND DIPLOMATIC HISTORY SINCE 1815.** (3)
A critical survey of problems and literature in political and diplomatic developments of the 19th and 20th centuries. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another. Prereq: An undergraduate course in European history.

**HIS 625 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY.** (3)
An intensive study of the Bibliography of British and British Empire History, primary and secondary, with readings, analyses and criticisms of selected titles in the literature of the field and of recent published research in the professional journals. May be repeated to a maximum of six credits if offered under a different instructor or if the topical coverage is sufficiently different. Prereq: An undergraduate course in British history.

**HIS 626 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY.** (3)
An intensive study of the bibliography of British and British Empire history, primary and secondary, with readings, analyses and criticisms of selected titles in the literature of the field and of recent published research in the professional journals. May be repeated to a maximum of six credits if offered under a different instructor or the topical coverage is sufficiently different. Prereq: An undergraduate course in British history.

**HIS 630 READINGS IN AMERICAN HISTORY: THE COLONIAL ERA.** (3)
An intensive survey of the major historiographical issues and the secondary literature of the Colonial Era. Lecture, two hours; library, one hour per week.

**HIS 631 READINGS IN AMERICAN HISTORY: THE AMERICAN REVOLUTION AND THE NEW REPUBLIC.** (3)
An intensive survey of the major historiographical issues and the secondary literature of the American Revolution and the New Republic.

**HIS 632 READINGS IN AMERICAN HISTORY: THE AGE OF JACKSON, THE CIVIL WAR, AND RECONSTRUCTION.** (3)
An intensive survey of the major historiographical issues and the secondary literature of the Age of Jackson, the Civil War and Reconstruction.

**HIS 633 READINGS IN AMERICAN HISTORY: THE GILDED AGE AND THE PROGRESSIVE ERA.** (3)
An intensive survey of the major historiographical issues and the secondary literature of the Gilded Age and the Progressive Era.

**HIS 634 READINGS IN AMERICAN HISTORY: AMERICA SINCE 1920.** (3)
An intensive survey of the major historiographical issues and the secondary literature of America since 1920.

**HIS 638 READINGS IN LATIN AMERICAN HISTORY.** (3)
Supervised reading at the graduate level of a selected topical bibliography covering the main themes of colonial Latin American history or the modern period. Prereq: Consent of instructor.

**HIS 650 READINGS IN SPECIAL TOPICS IN HISTORY.** (3)
Supervised reading at the graduate level of a selected bibliography of the essential literature of various special topics. May be repeated to a maximum of nine credits with different topics. Prereq: Consent of instructor.

**HIS 651 READINGS IN U.S. FOREIGN RELATIONS SINCE 1900.** (3)
This course will involve intensive reading in the history of United States foreign relations in the twentieth century. It will examine various theoretical approaches to the subject. It will analyze the sources and consequences of America's global expansion as well as the historiography of important events such as World War I and II, Korea and Vietnam.

**HIS 652 READINGS IN AMERICAN HISTORY OF SCIENCE AND TECHNOLOGY.** (3)
An intensive readings course that will focus on the major historiographical themes in the history of the sciences and technology in the U.S.

**HIS 653 READINGS IN U.S. WOMEN'S HISTORY.** (3)
This course will introduce students to the main currents in U.S. women's history in four broad chronological units: Traditional America, 1600-1820; Industrializing America-Part I, 1820-1880; Industrializing America-Part II, 1880-1920; and Modern America, 1920-present. Within this framework, the course will explore such topics as: work, communities and public life; gender, families and sexuality; race and African-American experiences; and religion, reform and political culture. The course will also familiarize students with the ongoing theoretical debates within women's history.

**HIS 654 READINGS IN MODERN AFRICAN-AMERICAN HISTORY.** (3)
Introduces graduate students to the historical literature on 20th century African-American history and major historiographical issues.

**HIS 655 READINGS IN ANTEBELLUM SOUTHERN HISTORY.** (3)
Introduces graduate students to the historical literature on the antebellum South and the major historiographical issues.

**HIS 656 READINGS IN NEW SOUTH HISTORY.** (3)
Introduces graduate students to the historical literature on the New South and the major historiographical issues.

**HIS 695 INDEPENDENT WORK.** (1-3)
Under special conditions selected students may investigate problems, with weekly reports to instructor. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**COURSES IN THE 700 GROUP**

These seminars are designed to introduce students to the methods, resources and auxiliary disciplines necessary to research in the designated fields in order to prepare them for the writing of theses and dissertations.

**HIS 700 SPECIAL PROBLEMS IN HISTORY.** (3)
Professors will conduct research seminars in topics or problems in which they have special research interests. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

**HIS 706 SEMINAR IN MEDIEVAL HISTORY.** (3)
Directed research on a common problem. May be repeated to a maximum of 12 credits. Prereq: A reading knowledge of Latin or of one European language or consent of instructor.

**HIS 710 SEMINAR IN AMERICAN HISTORY, 1607-1815.** (3)
May be repeated to a maximum of 12 credits.

**HIS 711 SEMINAR IN AMERICAN HISTORY, 1815-1865.** (3)
May be repeated to a maximum of 12 credits.

**HIS 712 SEMINAR IN AMERICAN HISTORY, 1865 TO THE PRESENT.** (3)
May be repeated to a maximum of 12 credits.

**HIS 722 SEMINAR IN MODERN EUROPEAN HISTORY, 1870 TO THE PRESENT.** (3)
May be repeated to a maximum of 12 credits.

**HIS 730 SEMINAR IN MODERN BRITISH HISTORY.** (3)
May be repeated to a maximum of 12 credits.

**THESES**

**HIS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**HIS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**HIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**HIS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

## HMN Humanities

**HMN 300 TOPICS IN THE HUMANITIES.** (3)
A multidisciplinary, topical course, experimental in nature, approved by the Gaines Center Faculty Advisory Committee. Open to all juniors and seniors; enrollment will be limited to ten students selected by Gaines Center Faculty Advisory Committee through competitive application. Prereq: Junior/senior status; approval of Gaines Center for the Humanities Director.

**HMN 301 GAINES SEMINAR IN THE HUMANITIES I.** (3)
A multidisciplinary seminar directed to topics of major concern in humanistic studies and to include consideration of culture, literature, history and landscape. Prereq: Gaines Fellowship Program; junior status.

**HMN 302 GAINES SEMINAR IN THE HUMANITIES II.** (3)
Continuation of HMN 301. A multidisciplinary seminar directed to topics of major concern in humanistic studies and to include consideration of culture, literature, history and landscape. Prereq: Gaines Fellowship Program; HMN 301.

**#HMN 303 CONTEMPORARY ISSUES CONCERNING THE HUMANITIES.** (1-3)
An interdisciplinary seminar in the humanities which will focus on contemporary issues. Open to all University students, subject to such limits or prerequisites as set by the instructor. May be repeated to a maximum of six credits under different subtitles. Prereq: Set by individual instructors.

**HMN 497 GAINES SENIOR THESIS.** (3-15)
An independent research course leading to an undergraduate thesis in the humanities, to be supervised by three faculty members, to be a minimum of 50 pages in length, and to be defended in an oral examination. A minimum of six credit hours must be taken in the fall semester. May be repeated to a maximum of 15 credits. Prereq: Gaines Fellowship Program; HMN 302.

## HMT Hospitality Management

**HMT 120 INTRODUCTION TO HOSPITALITY AND TOURISM MANAGEMENT.** (2)
A survey of the historical development and management structure of organizations that comprise the hospitality and tourism industry. The course format includes presentation by industry representatives, lectures and student led discussions.

**HMT 210 HOTEL ROOMS DIVISION MANAGEMENT.** (3)
A comprehensive study of the management principles which apply to the rooms division of a hotel property that includes front desk and housekeeper operations, reservations and billing, accounting procedures and public relations. Prereq: HMT 120, ACC 201 or consent of instructor.

**HMT 301 PRINCIPLES OF TRAVEL AND TOURISM.** (3)
An introduction to the structure, operation and characteristics of domestic and international tourism. Topics include transportation modes, destination planning and marketing, wholesale and retail travel agent agreements; geographic, social and cultural aspects of tourism. Prereq: HMT 120.

**HMT 420 HOSPITALITY MANAGERIAL ACCOUNTING.** (3)
Theoretical and practical investigation of the principles and applications of accounting systems and accounting data for hotels, restaurants and other organizations in the hospitality industry. Prereq: HMT 120, ACC 201, ACC 202.

**HMT 488 MANAGEMENT ISSUES AND ANALYSIS IN HOSPITALITY MANAGEMENT.** (3)
An integrative and applied hospitality management course that allows students to evaluate strategic planning, decision making and implementation for single and multiple business hospitality firms through analysis of current trends, cases and simulation exercises. Prereq: HMT 120, NFS 342, NFS 346, HMT 210, HMT 420, FIN 300, MKT 300, MGT 301.

**HMT 499 HOSPITALITY SENIOR FIELD EXPERIENCE.** (3)
Planned managerial work experience of at least 400 hours in a hospitality or institutional organization. The experience is coordinated by the field experience coordinator and the on-site supervisor. Written progress reports are submitted by the student and the on-site supervisor. A daily log is maintained by the student. Prereq: At least 30 hours of courses that include HMT 120, NFS 342, 400 hours of verifiable work experience in the hospitality industry, HMT 210 or consent of instructor.

## HON Honors

**HON 101 THE ANCIENT WORLD.** (3)
From Greek and Roman antiquity to the early Christian centuries: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty.

**HON 102 THE MEDIEVAL AND RENAISSANCE WORLD.** (3)
From the Middle Ages through the Reformation: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty. Written assignments required.

**HON 201 THE EARLY MODERN WORLD.** (3)
From the development of the modern scientific method through mid-19th century industrialism: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty.

**HON 202 THE CONTEMPORARY WORLD.** (3)
The contemporary world: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty.

**HON 300 SPECIAL COURSE.** (1-6)
Interdisciplinary, topical, experimental course to be approved by Honor subcommittee, taught by one or several instructors. Open to HP students and selected others at junior-senior level.

**HON 301 PROSEMINAR.** (3)
An interdisciplinary seminar in the history of culture; topics will vary from semester to semester, but a substantial research essay is always required. This course will satisfy the Honors program requirement for Independent Study. May be repeated to a maximum of six hours. Prereq: Junior standing, or HON 201, 202.

**HON 333 JOURNAL/JOURNEY PROJECT.** (1)
Special credit for Honors Program students who keep an intellectual journal for both fall and spring semesters, receiving one credit during the spring semester. Regular consultation with an assigned advisor, several group meetings during the year. May be repeated to a maximum of five credits. Pass/Fail only.

**HON 395 INDEPENDENT WORK.** (3-15)
Prereq: Upper division standing, membership in Honors Program, consent of Honors Director.

**HON 398 UNDERGRADUATE THESIS.** (6-15)
A formal thesis on a subject of the student's choosing, to be directed by a professor in his major department with the assistance of two other faculty members, one of whom must be from the Honors Program faculty. Prereq: Junior-Senior status, good standing in Honors Program, and written permission from the Director of the Honors Program.

**HON 399 FIELD-BASED/COMMUNITY-BASED EDUCATION.** (1-15)
A community-based or field-based experience under the supervision of a faculty member. May be repeated to a maximum of 30 credits. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement.

## HOR Horticulture

**HOR 100 AN INTRODUCTION TO HORTICULTURE PROFESSIONS.** (1)
A survey of horticulture as a profession; to inform students of opportunities and to develop an appreciation of horticultural science as it relates to the human environment. Offered on a pass/fail basis only.

**HOR 203 HOME HORTICULTURE.** (3)
A general horticulture course encompassing the use of ornamental plants, vegetable and fruit crops, and landscape design for the nonhorticulture major. (May not be used to fulfill horticulture departmental requirements.)

**HOR 320 WOODY PLANTS.** (4)
A detailed study of evergreen and deciduous trees, shrubs, vines, and ground covers occurring in the landscape; their systematic identification, hardiness, form, growth habit, size, culture, adaptation to environmental conditions, uses, and outstanding horticultural characteristics. Lecture, three hours; laboratory, three hours. Prereq: HOR 220.

**†HOR 327 WOODY PLANTS I.**

**HOR 330 ANNUAL AND PERENNIAL FLOWERS.** (3)
The identification, culture, and use of garden plants, including annuals, perennials, bulbs, flowering vines, rock and water garden species. Lecture, two hours; laboratory, two hours.

**HOR 340 FLORAL DESIGN.** (3)
Design work related to the florist industry. Lecture, two hours; laboratory, two hours per week. Prereq: Junior or senior standing.

**†HOR 345 PLANTS FOR INTERIORS II.**

**HOR 350 PLANT PROPAGATION.** (3)
A study of the principles and practices involved in producing plants by sexual and asexual methods and to provide the basic skills necessary for using these methods. The interrelationship of plant growth, structure and the environment as they affect the ability to propagate plants by a specific method. Lecture, two hours; laboratory, two hours. Prereq: BIO 106.

**HOR 352 NURSERY PRODUCTION.** (3)
An introduction to the production practices of container and field grown nursery stock as they relate to management and operation of a nursery business. A two to three-day field trip is required. Two hours lecture per week; three hours laboratory per week. Prereq or concur: HOR 327 and HOR 335, both of which can be taken concurrently or consent of instructor.

**HOR 375 GROWTH AND DEVELOPMENT OF HORTICULTURAL CROPS.** (3)
A study of the physiological basis of growth and development of horticultural crops, with an emphasis on topics specific to horticultural crop production. Prereq: BIO 106/107, CHE 115.

**HOR 399 EXPERIENTIAL LEARNING IN HORTICULTURE.** (1-6)
An experience working in horticulture or a closely related field in which the student develops manual and management skills and applies theory to practice. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Completion of learning agreement prior to registration with a faculty member of the department.

**HOR 402 FRUIT CROP PRODUCTION.** (3)
A detailed study of the principles of the care and management of commercial plantings of deciduous fruits (both small and tree). Lecture, two hours; laboratory, two hours per week. Prereq: A course in botany.

**†HOR 450 LANDSCAPE INSTALLATION.**

***HOR 460 GREENHOUSES AND CONTROLLED ENVIRONMENTS.** (2)
A study of greenhouse structures, coverings, equipment, and the monitoring and regulation of the environment including temperature, light, carbon dioxide, and relative humidity. Other types of controlled environments will also be included. Lecture, one hour; lecture/laboratory, two hours per week. Prereq: PLS 386 and HOR 375.

**HOR 510 VEGETABLE CROP MANAGEMENT.** (3)
A study of the fundamental principles underlying management of vegetable crops produced in the field and in the greenhouse. Lecture, two hours; laboratory, two hours. Prereq: HOR 370 and HOR 410 or consent of instructor.

***HOR 515 TURF MANAGEMENT.** (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and PLS 366. (Same as AGR 515.)

**HOR 525 GREENHOUSE FLORAL CROP MANAGEMENT.** (3)
The study of methods of control of flowering and growth of selected flowering pot plants, cut flowers and bedding plants produced commercially in greenhouses. Lecture, two hours; laboratory, two hours. Prereq: HOR 370. 420, 460.

**HOR 582 SPECIAL PROBLEMS IN HORTICULTURE.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

***HOR 597 SPECIAL TOPICS IN PLANT AND SOIL SCIENCE (Subtitle required).** (1-3)
Special topical or experimental courses in crop science, soil science or related areas of horticulture, or plant physiology for graduate and advanced undergraduate students. Special subtitle required and must be approved by the chair of Agronomy or Horticulture. A particular subtitle may be offered twice under AGR 597. Students may not repeat under the same subtitle. Prereq: Permission of instructor. (Same as AGR 597.)

**HOR 622 PHYSIOLOGY OF PLANTS I.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant-cell biology, ion transport, water and translocation, respiration and photosynthesis. Prereq: BIO 430G or equivalent or consent of coordinator. Prereq or concur: BCH 501. (Same as AGR/BIO/FOR 622.)

**HOR 623 PHYSIOLOGY OF PLANTS II.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: plant hormones, an introduction to plant biotechnology, senescence and abscission, stress physiology, phytochrome-photomorphogenesis-phototropism nitrogen and sulfur metabolism.. Prereq: BIO 430G or equivalent, and BCH 501 or consent of coordinator. (Same as AGR/BIO/FOR 623.)

**HOR 622 PHYSIOLOGY OF PLANTS I.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: An introduction to plant anatomy, water and translocation, plant cell biology, photosynthesis, respiration, nitrogen and sulfur metabolism, phytochrome and phototropisms. Prereq: BIO 430G or equivalent or consent of coordinator. Prereq or concur: BCH 501. (Same as AGR/BIO/FOR 622.)

**HOR 623 PHYSIOLOGY OF PLANTS II.** (3)
A physiological/biochemical treatment of central topics in modern plant physiology. Topics will include: ion and nutrient transport, photomorphogenesis-phytochrome-photoperiodism, plant hormones, seed germination and dormancy, stress physiology, senescence and abscission, an introduction to plant biotechnology. Prereq: BIO 530 or equivalent, BCH 501 or consent of coordinator. (Same as AGR/BIO/FOR 623.)

**#HOR 650 SOIL-PLANT RELATIONSHIPS.** (3)
An advanced course on the relationships between media and the root systems of plants growing therein. Prereq: AGR 366, BIO 430G (or equivalent), or consent of instructor. (Same as AGR 650.)

**HOR 657 SEED BIOLOGY.** (3)
Structure, development and function during plant reproductive development and seed ontogeny, including fertilization, embryogeny and endosperm development, seed formation, maturation, germination, dormancy and deterioration. Prereq: AGR 360, BIO 440G or consent of instructor. (Same as AGR 657.)

**HOR 732 MINERAL NUTRITION OF PLANTS.** (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 430G or equivalent; BCH 501 or consent of instructor. (Same as AGR/BIO 732.)

**†HOR 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT.**

**HOR 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**HOR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**HOR 770 SEMINAR.** (1)
May be repeated to a maximum of three credits.

***HOR 772 PLANT AND SOIL SCIENCE SEMINAR.** (1)
Reports and discussion of problems and research in crops, soils, horticultural science and plant physiology. May be repeated three times for a maximum of four credits. (Same as AGR 772.)

**HOR 790 RESEARCH IN HORTICULTURE.** (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

## HSE Health Sciences Education

**HSE 101 INTRODUCTION TO THE HEALTH SCIENCES.** (1)
Limited to students contemplating a career in one of the health sciences.

**HSE 320 PROFESSIONAL HEALTH EDUCATION METHODOLOGY.** (3)
A systematic review of research and practice literature, observation of persons serving in professional health education positions, and development of skills as a professional health catalyst (educator). This course will be built upon the background knowledge and skills learned in previous education, and natural, and social science courses. Prereq: Allied Health Education major or consent of department.

**HSE 340 WOMEN, HEALTH AND HEALING.** (3)
The course provides students with a broad overview of health issues facing American women. Students will examine health concerns such as eating disorders, mental health, reproductive process and issues, menopause, aging, surgeries and self-health from historic, social, gender roles and political perspectives. Prereq: An introductory course in sociology, anthropology or women's studies.

**HSE 440 WOMEN AND MENTAL HEALTH.** (3)
An examination of historical and current factors affecting women's mental health across the life span. Emphasis is placed on identification of hidden biases; treatment and social control issues; and policy implications. Selected mental health problems are examined in-depth. (Same as NUR 440.)

**HSE 481 PROFESSIONAL HEALTH EDUCATION PRACTICE.** (4-8)
To provide the professional health education specialist an opportunity to observe and practice classroom-learned principles and skills in a community. Prereq: HSE 321.

**HSE 502 PERFORMANCE EVALUATION IN THE CLINIC AND LABORATORY.** (3)
Concepts and principles of performance evaluation in health care settings with emphasis on: defining performance and developing criteria; designing the performance evaluation system; implementing performance appraisal documentation; and, utilizing supervisory and feedback techniques. Prereq: A health professions background.

**HSE 510 OLDER WOMEN AND THEIR HEALTH.** (3)
This course is designed to increase the awareness and understanding of the relationships among gender, health status and the aging process among older women. Such issues as changing social and cultural mores, public policies and utilization of health care resources are discussed as they impact women. Prereq: Upper division or graduate standing. (Same as NUR 510.)

**HSE 595 DIRECTED STUDIES.** (1-3)
Independent work devoted to research on specific problems, to challenge the student to synthesize concepts from his total program and relate them to his allied health specialty. Conference, one to three hours per week. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**HSE 660 ADVANCED CLINICAL PRACTICUM IN ALLIED HEALTH.** (1-6)
Offers advanced supervised clinical experience appropriate to the student's specialty. Forty clinical hours for one semester hour credit. May be repeated for a maximum of six credits. Prereq: Graduate standing; consent of instructor.

**HSE 670 ADVANCED SEMINAR IN ALLIED HEALTH.** (1-3)
Content of this course is determined by the clinical department(s) offering the seminar. It includes in-depth consideration of recent research and its application to health care delivery. May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

**HSE 690 RESEARCH PROBLEMS IN ALLIED HEALTH.** (3)
An independent research course for the study of special problems in allied health education. May be repeated to a maximum of 12 credits. Prereq: Graduate standing; consent of instructor.

**HSE 831 EFFECTS OF DISEASE AND INJURY ON THE PATIENT AND FAMILY.** (2)
Focuses on the psychosocial aspects of disease and injury encountered by physical therapists as they affect the adjustment of patients and families. The role of personality, the family, and the physical therapist in reaction and adjustment to specific medical conditions is emphasized and intervention techniques for facilitating patient adjustment are addressed. Prereq: Admission to the physical therapy curriculum or consent of instructor and two semesters of psychology.

**HSE 842 CLINICAL PRACTICUM IN ALLIED HEALTH.** (1-6)
Offers supervised clinical experience appropriate to the student's allied health specialty as determined by the clinical department. May be repeated to a maximum of 12 credits. Prereq: Admission to College of Allied Health Professions Program or permission of instructor.

***HSE 854 BIOLOGY OF DISEASE.** (3)
A study of the concept and process of disease. May be repeated for a total of five credits. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring and summer semesters (first year of professional program). (Same as PT 854.)

**HSE 880 SEMINAR IN ALLIED HEALTH (Variable Topic).** (1-3)
Study and analysis of current and topical problems and issues regarding the roles, trends and research for allied health educators. May be repeated to a maximum of six credits. Prereq: Admission to the College of Allied Health Professions Program.

## HSM Health Services Management

**HSM 241 HEALTH AND MEDICAL CARE DELIVERY SYSTEMS.** (3)
Review of the wellness-illness spectrum and the societal response in terms of health services. Topics to be covered include the nature and functions of health services agencies and professionals, and the impact of social, political, economic, regulatory, and technological forces. Also includes a discussion of major health problems and related health care programs.

**HSM 250 INTRODUCTORY EPIDEMIOLOGY.** (3)
An introduction to the science of epidemiology as the study of the distribution and determinants of health and disease. Prereq: Area I Mathematics requirement; BIO 110.

**HSM 260 INTRODUCTION TO HEALTH ADMINISTRATION.** (1)
Introduction to administrative roles, functions, settings and requirements through interviews with practicing administrators, site visits, discussion, and case studies.

**HSM 351 HEALTH SERVICES ADMINISTRATION.** (3)
Theories and practices of administration in health care institutions with special emphases on organizational behavior and analyses of various administrative processes and techniques. Prereq: HSM 260, CLA 131 and professional program status.

**HSM 353 HEALTH ADMINISTRATION, PLANNING AND MANAGEMENT TECHNIQUES.** (3)
Review of quantitative and nonquantitative techniques used in health care settings for planning, implementation and control. Emphasis will be placed on health service area delineation, patient origin studies, research methods, management information systems such as PAS, HAS, I.C.D.A., and quality assessment systems. Prereq: HSM 351, STA 291 or STA 370, and professional program status.

**HSM 354 HEALTH LAW.** (3)
Introduction to concepts of administrative and tort law applicable to health care settings. Topics to be considered include governance, patient rights, informed consent, medical/moral problems, malpractice, tax laws, contracts, labor law, regulation and institutional liability.

**HSM 355 FINANCIAL MANAGEMENT OF HEALTH CARE INSTITUTIONS.** (3)
A review of financial management practices in health care institutions. Course will analyze regulatory and third party reimbursement for financial management, financial management practices, impact of financing mechanisms and practices on health services decision making. Prereq: ACC 201, ACC 202, CH 351, ECO 260 and ECO 261 or consent of department.

**HSM 450 HOSPITAL AND HEALTH SERVICES: INTERORGANIZATIONAL RELATIONSHIPS.** (3)
Environment of interacting organizations in the health industry is considered. Attention given to multi-hospital organizations and other forms of interorganizational relationships. Prereq: HSM 351 and HSM 843.

**HSM 451 TOPICS IN HEALTH ADMINISTRATION (Subtitle required).** (1-6)
Readings, projects, lecture and/or discussion in seminar format to illuminate current topics of special interest or concern in health administration. May be repeated to a maximum of six hours. Prereq: Consent of department.

**HSM 452 COMMUNITY AND INSTITUTIONAL PLANNING FOR HEALTH SERVICES DELIVERY.** (3)
Theoretical foundations for health planning. History of health planning and regulation. Specific attention will be given to integration of institutional planning with community health planning. Prereq: HSM 843.

**HSM 502 ORGANIZATION AND SUPERVISION IN HEALTH CARE DELIVERY.** (3)
An analysis of the structure, functions and operations of systems for health care delivery. Emphasis is placed upon interrelationships among health care agencies; the role of the health care professional in supervision; human relations in health care delivery; and recent developments and trends in health care delivery. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**HSM 510 ORGANIZATION OF THE LONG-TERM CARE SECTOR.** (3)
This course examines the structure and function of the long-term care sector with emphasis on nursing homes and the role of noninstitutional alternatives. Analysis focuses on the impact of changes in reimbursement and regulatory policy, interorganizational relations, newly emerging treatment modalities, and the influence of the external organizational, economic, and political environment. Prereq: A course in health care delivery systems or permission of instructor.

**HSM 511 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION.** (1-3)
Directed independent library and/or community health study. May be repeated to a maximum of six hours. Prereq: Major in health administration and/or consent of department chairperson.

**HSM 538 FINANCIAL MANAGEMENT TECHNIQUES FOR THE CLINICAL MANAGER.** (3)
This course is designed to develop an understanding of basic financial management concepts and techniques and their use in decision making by clinical managers. The focus will be on non-financially trained clinicians who have assumed or plan to assume managerial positions in health care organizations. Lectures, problems, and case studies will be used to provide an opportunity to apply the material to a variety of organizational settings. Prereq: Senior level or graduate student standing in the College of Allied Health Professions or consent of the instructor.

**HSM 842 SEMINAR IN HEALTH ADMINISTRATION: PRE-PRACTICUM.** (1)
Preparatory seminar for the field practicum in health administration. Will cover such topics as self assessment, interviewing skills, forms of organizational behavior, consultation skills, time management, and documentation. Prereq: CH 351, 355; Majors only with permission of department.

**HSM 843 HEALTH ADMINISTRATION PRACTICUM.** (1-12)
Application of theoretical concepts in practice settings selected by faculty under the supervision of a preceptor and on-campus faculty. Includes in-depth study of an applied problem in health administration. Must be repeated to a maximum of 12 credits. Laboratory: one 40-hour week equals one credit hour. Prereq: Majors only—with permission of department.

**HSM 844 SEMINAR IN HEALTH ADMINISTRATION: POST-PRACTICUM.** (1)
Review of practicum experiences and an integration of theoretical concepts of health administration with the practice environment. Prereq: CH 843—majors only—with permission of department.

## ISP International Studies Program

**ISP 499 STUDY ABROAD IN SPONSORED PROGRAM.** (12-16)
A course designed for undergraduate students who go abroad to take courses in a foreign institution as part of a University of Kentucky program. A plan of study must be developed with the advice and approval of the UK faculty advisor for the particular study abroad program. The variable credits for ISP 499 are based on the number of credit hours the student plans to complete at the foreign institution. The actual credit hours recorded represent those credits completed by the student and sent to the Office of International Affairs by the foreign institution. University equivalent credit will be determined prior to the beginning of the student's study abroad. Prereq: Approval by student's academic department, the faculty advisor for the study abroad program, and the Office of International Affairs.

**ISP 599 STUDY ABROAD.** (1)
A course designed for undergraduate and graduate students who go abroad for study following a plan developed as part of their academic program and who are not otherwise registered at the University during the period overseas. Registration in the course would constitute full-time status. The course may be taken on a pass-fail basis for undergraduate students and audited by graduate students. Evaluation by the academic adviser will be an element of the plan. May be repeated to a maximum of three credits. Prereq: Approval by each student's academic department, the Registrar, and the Office for International Programs.

## JAT Journalism, Advertising, and Telecommunications

***JAT 101 INTRODUCTION TO COMMUNICATION MEDIA.** (3)
Lectures, readings, and other materials provide an introductory survey of the journalism, advertising , and telecommunications professions. This course will foster an understanding of the historical development, theory, effects, regulation, practice, and professional opportunities of these three industries. Students will gain an awareness of the possibilities and limitations of evolving communication technologies, preparing them to become intelligent consumers, producers, and managers of communication media.

**†JAT 110 TELECOMMUNICATIONS TODAY.**

**JAT 201 TELECOMMUNICATIONS TECHNOLOGIES AND SOCIETY.** (3)
Overview of electronic media technologies, emphasizing their historical development and interrelationships with economics, policy, and society.

**JAT 204 WRITING FOR THE MASS MEDIA.** (3)
A course designed to introduce students in the mass communications fields to practices and techniques in preparation of information materials for the printed and broadcast media. Designed for students in the School of Journalism and the College of Communications. Lecture, one hour; laboratory, four hours per week. Prereq: JAT 101 or consent of instructor; typing 30 wpm.

**JAT 241 COMMUNICATIONS PRACTICUM.** (1-4)
Supervised laboratory work in the media of mass communications, with meetings for evaluation of work, study of techniques, analyses of problems, and reports. May be repeated to a maximum of four credits. (Offered in Community College System only.)

**JAT 300 TELECOMMUNICATIONS RESEARCH METHODS.** (3)
An introduction to behavioral research relating to telecommunications basic survey and experimental methodology including reliability of simple measurements. Prereq: JAT 101, JAT 201.

**JAT 301 NEWS REPORTING.** (3)
A reporting course which emphasizes special fields of information, news gathering, and news evaluation. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 204 or equivalent.

**JAT 303 COPYREADING AND EDITING.** (3)
Instruction and practice in newspaper deskwork. Preparation of local, state, telegraph, and radio news and features; picture editing, and page make-up. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 204.

**JAT 305 TELECOMMUNICATIONS PROGRAM ANALYSIS.** (3)
Course designed to assist students in developing criteria for analyzing structure and content of program material and for analyzing the relationships of audiences, programs, and American telecommunications systems. Lecture, two hours; laboratory, two hours. Prereq: JAT 101, JAT 201.

**JAT 310 TELECOMMUNICATIONS REGULATIONS.** (3)
A study of the governmental regulations of telecommunications by the FCC, and other federal, state and local agencies, including licensing, libel and slander, copyrights, illegal practices, self regulation. Prereq: JAT 101, JAT 201.

**JAT 312 TELEVISION PRODUCTION I.** (3)
An introduction to the fundamentals of video production, from conception to completed product. Practical training with essential production equipment will be offered. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 101 and consent of department chair.

**JAT 319 WORLD MEDIA SYSTEMS.** (3)
A comparison of the communications media in different countries of the world and the theories used to justify them, How various political and social systems affect the media and how the media affect the societies in which they exist. Prereq: COM 101, JAT 101 or consent of instructor. (Same as COM 319.)

**JAT 320 RADIO AND TELEVISION NEWS REPORTING.** (3)
Writing for broadcast builds upon the skills learned in JAT 101, Introduction to Journalism; JAT 204, Writing for the Mass Media; and JAT 303, Reporting, to help the student acquire proficiencies required for careers at radio and television news gathering facilities. Writing conversationally and for time instead of space will be essential throughout the course. Voice development and presentation including diction and projection will be studied and put into practice. Basic editing of radio and television news tape will be taught. Ethical problems and situations will be considered. Prereq: JAT 301 or consent of instructor for non-degree journalism students.

**JAT 341 PUBLIC RELATIONS.** (3)
A course introducing students to the basic concepts of public relations, including its theory and practices, professional history, function in organizations, and role in society. This course meets the needs of those planning or currently involved in professional and managerial careers which require an understanding of public relations. Prereq: Admission to upper-division in the College of Communications.

**JAT 361 PRINCIPLES OF ADVERTISING.** (3)
An introductory course in all phases of advertising and its role in contemporary society. Includes an overview of advertising as the communications process of marketing; a study of the creative message in print, radio, and television; the fundamentals of advertising research; a detailed study of media characteristics; an assessment of the advertising campaign and how it is planned in terms of strategy, information processing, sales promotion, and the media mix. Prereq: Junior standing. JAT 204 for journalism majors; MKT 300 or consent of instructor for other majors.

**JAT 387 INTRODUCTION TO PRESS PHOTOGRAPHY.** (3)
A basic course in the use of cameras, and laboratory equipment in modern press photography, and a study of selected readings on photographic methods and skills.

**JAT 395 INDEPENDENT STUDY.** (1-3)
Designed for advanced students with research or special study problems. Regular consultation with the instructor. May be repeated to a maximum of six credits. Enrollment normally limited to juniors and seniors with a 3.0 standing in the major. These requirements may be waived by the department in exceptional circumstances. Prereq: Consent of instructor.

**JAT 399 INTERNSHIP (Subtitle required.)** (1-3)
Qualified students enter the professional sector to refine skills and knowledge. Supervised internships approved by the School allow placements in industry, government, radio, television, print media, research agencies, etc. A signed contract must be completed prior to the start of the internship. Pass/Fail only. Prereq: admission to upper-division, fulfillment of internship prerequisites for the major, and approval of internship director for the major.

**JAT 409 MAGAZINE ARTICLE WRITING.** (3)
Lectures, personal conferences, and practice in writing and submitting material for publication in magazines; study of the markets for this material; free-lance article writing. Prereq: JAT 301 or consent of instructor.

**JAT 410 PUBLICATIONS PRODUCTION.** (3)
Study of the theory and practice in the techniques of effective communication through print. Primary emphasis will be on magazine, but other publications will be considered. The course will provide instruction in the processes involved in defining the purpose of, designing and producing a publication. Those are: planning, design, article grading and editing, picture selection, page layout, headline and title writing, Lecture, two hours; laboratory, two hours per week. Prereq: Consent of instructor.

**JAT 412 TELEVISION PRODUCTION II.** (3)
A follow-up to JAT 312, this course is an advanced television production course and will feature instruction in directing, camera work, editing and lighting. Lecture, three hours; laboratory, one hour per week. Prereq: JAT 312.

**JAT 413 AUDIO PRODUCTION.** (3)
Elements of audio production, including basic machines, microphones, patch panels, the production mixing. Different audio products are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 305.

**JAT 414 TELECOMMUNICATIONS PERFORMANCE.** (3)
Offers the students the unique opportunity to develop essential skills for professional on-air performance. Development of on-camera presence, pleasing and articulate vocal presentation and a thorough understanding of the performer's radio and television performance are covered. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 312.

**JAT 420 TELECOMMUNICATIONS PROGRAM CRITICISM.** (3)
Examination of each of several critical theories and approaches to the criticism of telecommunications program content. Practical experience in evaluating critical writing and in the writing of critical pieces. Prereq: JAT 305.

**JAT 439 REPORTING PUBLIC AFFAIRS.** (3)
Instruction and practice in reporting the news originating in courts and other public institutions. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 301.

**JAT 445 CASE STUDIES IN PUBLIC RELATIONS.** (3)
This course is designed to reinforce and expand the knowledge learned in the introductory public relations course, JAT 341. The course will provide students with an opportunity to apply public relations principles and approaches to institutional experiences. Emphasis will be placed on actual case studies, and students are expected to demonstrate a high level of proficiency in written and oral communications skills. Prereq: JAT 341.

**#JAT 455 MASS MEDIA AND DIVERSITY.** (3)
This course will examine gender and minority issues in the media. The course offers a critical framework for analysis of socio-cultural issues pertaining to women, ethnic groups, disabled persons, and others and of their presentation in the media. Prereq: JGED, JOAD, TELE major or permission of instructor.

**JAT 461 ADVERTISING MEDIA PLANNING.** (3)
Strategies and tactics connected with the appropriation of advertising budgets, time and space buying, and the general statement of advertising objectives. Includes use of secondary data for target audience, cost efficiency, reach and frequency analyses. Examines both quantitative and qualitative aspects of the mass media. Prereq: JAT 361; JOAD major or instructor's consent.

**JAT 464 ECONOMICS OF REGULATED INDUSTRIES.** (3)
A study of economic principles and regulatory procedures related to regulated industries. The study includes an analysis of particular regulated industries, such as electric, gas, communications, and transportation. Prereq: ECO 202 or equivalent. (Same as AEC/ECO 464.)

**JAT 471 ADVERTISING RESEARCH.** (3)
Introduces students to applied research as a decision making tool for the advertising professional. Students acquire basic skills in: identification of information needs, stating of research objectives, selection of appropriate research technique (s), sample selection, questionnaire design, analysis procedures, report writing, and budget management. Topics prepare students to conduct small-scale advertising oriented survey research and to buy and evaluate studies from custom and/or syndicated research suppliers. Legal and ethical issues are also examined. Prereq: JAT 361; JOAD major or instructor's consent.

**JAT 481 ADVERTISING CREATIVE STRATEGY AND EXECUTION I.** (3)
Ideas and their translation into words and images which inform and persuade. Emphasis is on a disciplined, strategic approach to creative decision-making across all media. Topics include setting objectives, selection of appeal, copy structure demands of different media, design principles, layout and storyboarding, and regulations affecting messages. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 361; JOAD major or instructor's consent.

**JAT 485G COMMUNITY JOURNALISM.** (3)
A study of all phases—editorial, advertising, circulation, production, management—of small town and suburban newspapers, with emphasis on the special concerns and opportunities of community newspaper editors and publishers. Prereq: JAT 204 or consent of instructor.

**JAT 487 PHOTOJOURNALISM.** (3)
This course provides an in-depth study of the many facets of photojournalism from the photo editor's vantage as opposed to that of the news photographer. The student will, while continuing to shoot assignments, probe the legal aspects of news photography; the ethics of the profession; look at the future of the field; shoot and lay out stories, and attend lectures by visitors from the profession. Lecture, one hour per week; laboratory, four hours per week. Prereq: JAT 387 and consent of instructor.

**JAT 488 ADVERTISING CREATIVE STRATEGY AND EXECUTION II.** (3)
Students refine their ability to meet strategic goals through creative message executions. Media options and their impact on message structure and preparation are explored more fully. Application is made of pertinent theoretical principles such as source credibility, selective exposure/perception, and learning theory. Presentation skills stressed. Portfolio preparation and review. Lecture, two hours; laboratory, two hours. Prereq: JAT 481 and instructor's consent.

**JAT 489 TOPICAL STUDIES IN MASS MEDIA PROFESSIONS (Subtitle required).** (1)
Each course module offers advanced, pinpoint study of a topic central to the mass media professions. Depending on the topic, the course format may include lectures, seminars, and/or studio work. May be repeated to a maximum of three credits when identified by different subtitles. Prereq: Variable, given when topic is identified.

**JAT 491 ADVERTISING CAMPAIGNS.** (3)
An advanced course which enables senior advertising students to unify strategic and tactical abilities developed in research, creative, media and other pertinent coursework. The format for this synthesis requires students to establish strategy, develop, execute, and present a multimedia advertising campaign. Student agencies compete for client approval on national, regional, or local accounts. Lecture, two hours; laboratory, two hours per week. Prereq: JAT 461, JAT 471, JAT 481; JOAD major or instructor's consent.

**JAT 497 SPECIAL TOPICS IN JOURNALISM (Subtitle required).** (1-3)
Course will focus on selected topics drawn from various areas of general editorial, advertising, and public relations, taught by faculty members with special interest. May be repeated in courses of differing topics to a maximum of six credits. A title assigned each time course is offered. Prereq: Consent of instructor.

**JAT 499 ADVANCED WRITING FOR THE MASS MEDIA.** (3)
A course designed to provide communications majors advanced training in reporting and writing articles on current events, public issues, personalities, culture and entertainment for newspapers, magazines and the broadcast media. Twice weekly seminars; laboratory and independent work by students as needed to complete assignments; individual consultation between instructor and students. Prereq: Consent of instructor.

**JAT 504 TELECOMMUNICATIONS MANAGEMENT.** (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. Prereq: JAT 301 and JAT 305, or consent of instructor.

**JAT 505 ADVANCED TOPICS IN TELECOMMUNICATIONS POLICY.** (3)
Examination of the purposes and processes of formation of public and private policy toward radio, television, and other information industries. Prereq: JAT 301.

**JAT 508 ADVANCED RESEARCH METHODS.** (3)
Provides advanced training for research design, sampling, analysis and evaluation procedures in telecommunications. Telecommunications problem areas will be analyzed through readings, discussion and use of analytic techniques. Prereq: JAT 300 and a statistics course.

**JAT 510 ADVERTISING AND ELECTRONIC MEDIA.** (3)
The data and techniques of radio and television advertising, including problems of coverage and circulation, spot campaigns, testing, time buying, the agency, measuring broadcast effectiveness, merchandising radio and television advertising and time selling. Prereq: JAT 300.

**JAT 511 TELECOMMUNICATIONS INSTRUCTIONAL SYSTEMS.** (3)
The course is designed to assist telecommunications professionals and students to design, operate and evaluate telecommunications tools and materials in support of organized instruction. Lecture, three hours; laboratory, two hours. Prereq: Consent of instructor.

**JAT 513 SOCIAL EFFECTS OF TELECOMMUNICATIONS.** (3)
An examination of the economic, political, social and behavioral effects of telecommunications systems in American society. Focus on theory and empirical research generated since 1940. Prereq: JAT 300.

**JAT 520 ECONOMICS OF INFORMATION.** (3)
Exploration of the economics of information industries, with particular attention to the special characteristics of information, the economic behavior of communications channels, and the role of information in decision making, the economy, organizational behavior, and other domains. Prereq: Consent of instructor.

**JAT 530 PROSEMINAR IN TELECOMMUNICATIONS.** (3)
Discussion and reports on current trends in telecommunications industries and the behavioral, political and regulatory implications attending such trends. Prereq: By departmental invitation only.

**JAT 531 LAW OF THE PRESS.** (3)
A study of the special laws of libel, copyright, and regulatory provisions that pertain to the press.

**JAT 532 ETHICS OF JOURNALISM AND MASS COMMUNICATION.** (3)
An examination of the nature, role, and evaluation of ethics in journalism and mass communication. Key ethical issues will be analyzed conceptually and illustrated in case studies. The social, political, and economic context of ethical issues in journalism will be identified and examined. The objectives are to enhance the ability to use reason in resolving issues of value as they arise in the practice of journalism and mass communication. Prereq: PHI 130 or consent of instructor.

**JAT 535 HISTORY OF JOURNALISM.** (3)
A study of the rise and development of American journalism and newspapers.

**JAT 541 CRITICAL TOPICS IN ADVERTISING (Subtitle required).** (3)
Students will use psychological or sociocultural perspectives to analyze one or more important aspects of the interaction between advertising and society. Topics that may be considered include behavioral, political, economic, and/or international issues associated with advertising. The course may be repeated to a maximum of six credits when identified by different subtitles. Prereq: Senior or graduate standing; JAT 361 or consent of instructor.

**JAT 543 ADVERTISING REGULATION.** (3)
Course features regulatory interrelationships among advertisers, advertising agencies, media of distribution, and governments. Extensive use of problem solving approach. Prereq: JAT 361.

**JAT 545 ENTERTAINMENT FUNCTIONS OF THE MASS MEDIA.** (3)
This course provides an understanding of telecommunications content designed primarily for entertainment. It looks at why audiences seek such content, at the immediate and long-term probable consequences and at the role telecommunications entertainment content plays in society from the vantage both of classic and contemporary theory and research. Prereq: JAT 300.

**JAT 599 TELECOMMUNICATIONS TOPICAL SEMINAR.** (3)
In-depth seminar approach to a single topical issue in telecommunications. Different topical issues each offering. Course will be offered on demand. May be repeated to a maximum of six credits. Prereq: Consent of department.

## KHP Kinesiology and Health Promotion

**PHYSICAL EDUCATION**

**KHP 100-KHP 135 SERVICE COURSES.** (1)
Instruction in a variety of motor skills activities. Courses are designed for students at a beginner level. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit.

**KHP 136-KHP 144 ADVANCED SERVICE COURSES.** (1)
Instruction in a variety of motor skills activities. The courses are designed for students who already possess intermediate skill in the activity. Instructors will assess skill at start of course. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit. Assignment of specific titles will occur internally in the department. Laboratory, three hours. Prereq: Completion of comparable service course or demonstrated competency.

**KHP 146 FLAGBALL AND SPEEDBALL.** (1)
Designed to familiarize the professional physical education student with the skills, practices, lead-up games, techniques, and theory of flagball and speedball. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach flagball and speedball. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: Department major or consent of instructor.

**KHP 147 DANCE FOUNDATIONS I.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of social, folk and square dancing. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach social, folk, and square dance. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED and ELED majors only.

**KHP 148 BASKETBALL.** (1)
Designed to familiarize the professional physical education student with the skills, practices, and theory of basketball. Development of at least intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach basketball. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester.

**KHP 150 SOCCER.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of soccer. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach soccer. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED majors only.

**KHP 152 TECHNIQUES OF SWIMMING.** (1)
Acquisition of intermediate and advanced swimming skills. Includes techniques of teaching beginning and intermediate swimming and diving. Other topics include mechanical analysis of strokes, skin diving, survival swimming, basic first aid, rescue and safety in the aquatic environment. Laboratory, three hours per week. Prereq: Intermediate skill test first day of class and PHED majors only.

**KHP 153 VOLLEYBALL.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of volleyball. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach volleyball. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED majors only.

**KHP 154 DANCE FOUNDATIONS II.** (1)
Designed to familiarize the professional physical education student with the techniques, skills, theory and composition of dance. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach dance and transfer its attributes to sports areas. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED and ELED majors only.

**KHP 155 PRINCIPLES OF CONDITIONING.** (1)
Designed to familiarize the professional physical education student with the theory, techniques, and practices of conditioning. Understanding of the basic principles, and an attainment of above average personal physical fitness status is expected of the students. The primary goal of the course is to equip students with knowledge and skill to design and carry out safe and meaningful physical conditioning programs. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester.

**KHP 156 GYMNASTICS.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques and theory of gymnastics. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach gymnastics. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: KHP 115 or demonstrated competence and PHED majors only.

**KHP 157 TRACK AND FIELD.** (2)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of track and field. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach track and field. Laboratory, six hours.

**KHP 158 ARCHERY AND SOFTBALL.** (1)
Designed to familiarize the professional physical education student with the skills, practices, and theories of archery and softball. Development of at least an intermediate skill level is expected of the students. The goal of the course is to provide the students with the teaching methods and skills to effectively teach archery and softball in the public schools. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester.

**KHP 159 TENNIS.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of tennis. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach tennis. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED majors only.

**KHP 160 BADMINTON.** (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of badminton. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach badminton. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED majors only.

**KHP 161 GOLF.** (1)
Designed to familiarize the professional physical education student with the skills, strategies, rules and teaching techniques of golf. Development of at least an intermediate skill level is expected. The primary goal of the course is to equip the student with skills necessary to effectively teach golf. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: PHED majors only.

**KHP 162 OUTDOOR EDUCATION THROUGH ACTIVITIES.** (1)
An overview of outdoor educational skills and wilderness related activities for use by physical education majors in the school and/or recreational setting. Laboratory, two hours per week. Prereq: PHED majors only.

**KHP 163 TEAM HANDBALL/NEW GAMES.** (1)
This course is designed to familiarize the physical education student with the skills, practices, techniques, and theory of team handball and new games. Development of at least an intermediate skill level in team handball and a knowledge base of at least 20 new games is expected of the students. The primary goal of this course is to equip students with the skills necessary to effectively teach handball and new games. Laboratory, six hours per week for one-half the semester or three hours per week per semester.

**KHP 181 MODERN DANCE I.** (2)
Techniques of creative dance including movement sequences leading to individual and group studies in initial compositional elements. Laboratory, four hours. Prereq: KHP 106 or demonstrated skill for consent of instructor.

**KHP 182 MODERN DANCE II.** (2)
Advanced techniques for creative dance. Special emphasis on the development of movement themes as motivated by specific content. Laboratory, four hours. Prereq: KHP 181.

**KHP 200 THE HISTORY AND PHILOSOPHY OF PHYSICAL EDUCATION AND SPORT.** (3)
An introduction to the history and philosophy of physical education. An emphasis will be on: (1) the role of philosophy, educational philosophy, and the philosophy of physical education and (2) the major historical influences in the development of existing physical education programs in the United States.

**KHP 220 SEXUALITY EDUCATION.** (2)
This course is designed to prepare educators to offer sexuality education in the schools. Emphasis is placed on justification of sexuality education, relevant content, appropriate teaching techniques, and precautions to take when teaching sexuality education.

**KHP 222 DRUG EDUCATION.** (2)
This course is designed to prepare educators to offer drug education in the schools. Emphasis is placed on the prevalence of drug use by youth; physiological, psychological, and social effects of various drugs; effective and ineffective approaches to drug abuse prevention; appropriate teaching strategies; and evaluating drug curricula.

**KHP 240 NUTRITION AND PHYSICAL FITNESS.** (3)
Course focuses on the interrelationship between nutrition and physical fitness. The intent is to provide the student with the information necessary to formulate an individualized plan for the achievement and maintenance of adequate nutrition and physical fitness. Weight control will be discussed in this content. Team taught by nutrition faculty and health, physical education and recreation faculty. Lecture, two hours; laboratory, two hours. (Same as NFS 240.)

**KHP 241 BASKETBALL COACHING FUNDAMENTALS.** (2)
Theory and practice in coaching fundamentals involved in basketball. Laboratory, four hours.

**KHP 244 BASEBALL AND SOFTBALL COACHING FUNDAMENTALS.** (2)
Theory and practice in coaching fundamentals involved in baseball and softball. Laboratory, six hours.

**KHP 252 WATER SAFETY LEADERSHIP.** (2)
Leadership training in the teaching of swimming, lifesaving, diving, synchronized swimming, competitive swimming, camp waterfront, beach and pool operation and exhibition. Laboratory, four hours. Prereq: Current lifesaving certificate or equivalent.

**KHP 263 CURRICULUM DESIGN AND DEVELOPMENTAL SPORTS SKILLS IN THE ELEMENTARY SCHOOL.** (3)
The study of sports skills development and their inclusion in the elementary programs of games of low organization, lead-up games, and refined sports skills. Lecture, two hours; laboratory, two hours per week.

**KHP 290 HISTORY AND PHILOSOPHY OF THE DANCE.** (3)
The study of the evolution of dance through the cultural periods of history and the interrelation of the arts of social structure and dance forms.

**KHP 293 CLASSICAL BALLET I.** (2)
The basic techniques and theories of traditional classic dance. Designed for beginning dance students. Lecture, one hour; laboratory, two hours. Prereq: KHP 129 or demonstrated skill for consent of instructor.

**KHP 294 CLASSICAL BALLET II.** (2)
Intermediate techniques and theories of classical dance. Lecture, one hour; laboratory, two hours. Prereq: KHP 293 or equivalent.

**KHP 300 PSYCHOLOGY AND SOCIOLOGY OF PHYSICAL EDUCATION AND SPORT.** (3)
A survey course in the social science foundation of sport. Study of the sociological and psychological concepts which are relevant in understanding of sport in this country and the world. After the successful completion of this course, the student should be able to define, discuss, and identify the basic social and psychological factors which are related to the pursuit of movement through sport.

**KHP 321 OFFICIATING BASKETBALL.** (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating basketball. The standards of officiating as offered by KHSAA or the Affiliated Board of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lectures, discussion, situational drills and observation. Independent of course evaluation, students will be given the opportunity to take KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

**KHP 322 OFFICIATING VOLLEYBALL.** (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating volleyball. The standard of officiating as offered by KHSAA or the Affiliated Boards of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lectures, discussion, situational drills and observation. Independent of course evaluation, students will be given the opportunity to take KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

**KHP 323 OFFICIATING BASEBALL-SOFTBALL.** (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating baseball-softball. The standards of officiating as offered by KHSAA or the Affiliated Boards of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lecture, discussion, situational drills, and observation. Independent of course evaluation, students will be given the opportunity to take the KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

**KHP 340 ATHLETIC TRAINING.** (2)
Consideration is given to the prevention, treatment and rehabilitation of injuries. Films and other visuals, visiting physicians and team trainers will be used to supplement instruction. The student will have an opportunity to gain practical experience. Lecture, one hour; laboratory, three hours.

**KHP 344 PHYSICAL EDUCATION IN THE SECONDARY SCHOOL.** (3)
Required for teacher certification in physical education. Theory and practice in methods of teaching physical education activities and supervising programs in the secondary school. Lecture, two hours; laboratory, two hours per week. Prereq: Admission to the Teacher Education Program or permission of the instructor.

**KHP 360 PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL.** (3)
An introduction to the necessary skills needed for the planning and conduct of modern elementary physical education programs. Emphasis is placed on teaching basic movement skills, fundamental rhythmic and sports skills. Lecture, two hours; laboratory, two hours per week. Prereq: KHP 263 or equivalent or consent of instructor via permit; and admission to Teacher Education Program or consent of instructor via permit.

**KHP 361 FIELD EXPERIENCES WITH ELEMENTARY SCHOOL CHILDREN.** (1)
Field experience with elementary school age children in programs of sports, physical education and recreation. Prereq: KHP 360 or equivalent experience or consent of field experience director.

**KHP 362 FIELD EXPERIENCES IN SECONDARY EDUCATION.** (1)
Supervised experiences in school, agency, and recreation department programs of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Health, Physical Education and Recreation. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

**KHP 369 STUDENT TEACHING IN PHYSICAL EDUCATION.** (3-12)
For students who expect to teach and who meet the requirements for a major in physical education. Experience in working with children in physical education activities comprises basic part of course. Safety education also included. To be offered only on a pass-fail basis. Prereq: Admission to the Teacher Education Program or permission of instructor.

**KHP 382 PHYSICAL EDUCATION FOR ELEMENTARY SCHOOL TEACHERS.** (2)
Provides physical education concepts and content to be taught to the elementary students. Includes instructional methods and management techniques appropriate for physical education programs at the elementary school level. Lecture, one hour; laboratory, two hours per week. Prereq: Admission to elementary or early childhood teacher education program or consent of instructor.

**KHP 390 DANCE ACTIVITIES IN THE ELEMENTARY SCHOOL.** (2)
Designed for teachers of elementary children to give depth in significant phases of physical education of the elementary child. Special emphasis is given to acquisition of skills and understandings of the total dance program. Lecture, one hour; laboratory, two hours. Prereq: KHP 360 or consent of instructor.

**KHP 391 THEATER DANCE I.** (2)
Theory and practice of theater dance from the primitive era to the 20th century. Lecture, one hour; laboratory, two hours.

**KHP 392 THEATER DANCE II.** (2)
Intermediate theater dance, modern dance, dance for television, musical comedy, and stage plays. Lecture, one hour; laboratory, two hours. Prereq: KHP 391 or equivalent.

**KHP 393 RHYTHMICAL FORMS, IMPROVISATION, AND ANALYSIS.** (3)
An analysis of rhythmical forms of movement incorporating the principal elements of dance improvisation. The craft of improvisation using the principles of dance as an art form will be explored.

**KHP 395 INDEPENDENT WORK IN HEALTH AND SAFETY OR PHYSICAL EDUCATION OR RECREATION.** (3)
May be repeated to a maximum of 12 credits. Prereq: Major and 3.0 standing in area or consent of instructor.

**KHP 420G PHYSIOLOGY OF EXERCISE.** (3)
An in-depth study of the immediate and long-term effects of exercise on the human organism. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206 or equivalent.

**KHP 430 METHODS OF TEACHING HEALTH EDUCATION.** (3)
A variety of contemporary teaching methods appropriate for use in grades K-12 will be presented. Students will be exposed to these methods through textbook and outside readings and through observation of the instructor, public school teachers, and peer teachers. Methods will be critically examined for effectiveness in the cognitive, affective, and behavioral areas. Prereq: KHP 220, 230, or equivalent, or consent of instructor via permit; and admission to Teacher Education Program or consent of instructor via permit.

**KHP 440 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION.** (3)
Policies and procedures of administration on the secondary school and collegiate levels. Special emphasis on construction and care of facilities, equipment, and supervision of personnel. Prereq: KHP 344 or equivalent.

**KHP 445 INTRODUCTION TO TESTS AND MEASUREMENTS.** (3)
An analysis of written and motor performance tests in health, safety, physical education, and recreation. Laboratory experiences in the administration, scoring, and interpretation of motor performance tests are provided. Lecture, two hours; laboratory, two hours.

**KHP 485 SPORT IN AMERICA.** (3)
An overview of the history and development of sport in the United States from colonial times to the present with emphasis on the scope and diversity of modern day sport and its impact on society.

**KHP 515 ANATOMICAL AND MECHANICAL KINESIOLOGY.** (3)
A quantitative and qualitative study of human motion as it relates to locomotor and physical education activities. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206, or equivalent and consent of instructor.

**KHP 546 PHYSICAL EDUCATION WORKSHOP.** (1-3)
A concentrated study in a specific sport or activity or field of emphasis in physical education. May be repeated to a maximum of six credits.

**KHP 547 PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY.** (3)
An analysis of research findings in the psychology of teaching and coaching with emphasis placed on those factors which influence the acquisition of motor skills as well as on the psychological benefits of exercise and sport. Prereq: Undergraduate psychology course and basic statistics or consent of instructor.

**KHP 560 MOTOR DEVELOPMENT IN INFANTS AND YOUNG CHILDREN.** (3)
An analysis of the processes of learning to move and moving to learn in infants and young children. Emerging interrelationships among the motor, social, emotional, and cognitive forms of behavior are explored. Laboratory experiences are provided in early childhood education programs. Prereq: PSY 100.

**KHP 579 ADAPTED PHYSICAL EDUCATION.** (3)
A study of programs of adapted and developmental physical education for the handicapped. Experiences will include the appraisal of psychomotor functioning, design of instructional intervention, and program implementation and evaluation. Lecture, two hours; laboratory, two hours. Prereq: KHP 472, or consent of instructor.

**KHP 592 CHOREOGRAPHY.** (2)
Creation and production of dances in ballet, modern, and theater dance forms. Lecture, one hour; laboratory, two hours. Prereq: Beginning ballet, modern and theater dance.

## GRADUATE COURSES

**KHP 615 BIOMECHANICS OF FUNDAMENTAL MOVEMENTS.** (3)
A research oriented, qualitative and quantitative investigation into the fundamental human movement patterns of ambulation, jumping, throwing, and striking. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in physics, KHP 515, and consent of instructor.

**KHP 620 ADVANCED EXERCISE PHYSIOLOGY.** (3)
Aimed at development of an in-depth understanding of the acute and chronic adaptations of the human body to the stress of exercise. Lecture, two hours; laboratory, two hours. Prereq: KHP 420G or consent of instructor.

**KHP 621 EXERCISE AND CORONARY HEART DISEASE.** (3)
An examination and analysis of the theories relating the level of physical activity to the development of heart disease. Discussion of the role of exercise in the diagnosis, prevention and rehabilitation of heart disease. Prereq: KHP 420G, 445 or consent of instructor.

**KHP 644 RESEARCH TECHNIQUES APPLIED TO HEALTH, PHYSICAL EDUCATION AND RECREATION.** (3)
A critique of research procedures for purposes of developing more efficient research designs applicable to problems in health, physical education and recreation. Should be preceded or accompanied by basic statistics and introduction to measurement.

**KHP 676 CURRENT ISSUES AND PROBLEMS IN SPORT MANAGEMENT.** (3)
An in-depth analysis of pertinent issues and problems affecting the management of sport and fitness programs.

**KHP 680 SPORT MARKETING.** (3)
An introduction to the broad area of sport marketing to include a focus on marketing management as it applies to sport, the general nature of the sport consumer, pricing strategies and promotions, licensing, and the role of research in sport marketing. Prereq: MKT 300 and MKT 310 or 320 or 340 and HPER major or consent of instructor.

**KHP 681 FINANCIAL ASPECTS OF SPORT.** (3)
Course focuses on principles, practices and theories associated with financial planning and management of enterprises engaged in the provision of sport related services and/or products. Topics include budget planning and preparation, preparing and analyzing financial statements, revenue sources, money management, preparation of business plans and feasibility studies. Prereq: ACC 201 and 202 and HPER major or consent of instructor.

**KHP 685 SUPERVISION OF SPORT AND FITNESS PERSONNEL.** (3)
A study of the three major functions of the supervisor: planning, directing and controlling and their application to the area of organized sport. Prereq: KHP 580 or consent of instructor.

**KHP 686 SPORT MANAGERS LABORATORY.** (3)
A combination of lectures and laboratory experiences which enable the student to demonstrate competence in the application of various applied management skills learned in KHP 685. Skills such as delegation, performance appraisal, coaching and counseling employees will be covered. Students will be videotaped as a method of providing feedback. Prereq: KHP 685 or consent of instructor.

**KHP 687 PRACTICUM IN SPORT MANAGEMENT.** (3-9)
Extensive work experiences under the immediate supervision of qualified managers and sport management faculty coordinator. May be repeated to a maximum of nine credits. Prereq: HPER major (Sport Management) and consent of instructor.

**KHP 695 INDEPENDENT STUDY IN PHYSICAL EDUCATION.** (1-3)
A specific topic in physical education related to the student's interests and program needs is selected for intensive study. Work to be supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**KHP 696 INDEPENDENT STUDY IN RECREATION.** (1-3)
A specific topic in recreation related to the student's interests and program needs is selected for intensive study. Work supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**KHP 720 SPORTS MEDICINE.** (3)
A study of the basic areas covered in sports medicine with readings and discussions of current international trends in the research and practice in this field. Prereq: Twelve semester hours; credit in the field of biological sciences; consent of instructor.

**KHP 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**KHP 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**KHP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**KHP 769 RESIDENCE CREDIT FOR THE DOCTORAL DEGREE.** (0-12)
May be repeated indefinitely.

**KHP 770 SEMINAR IN PHYSICAL EDUCATION.** (3)
Each semester some contemporary topic in the field of physical education will be studied intensively. May be repeated to a maximum of nine credits.

**KHP 780 SEMINAR IN RECREATION.** (3)
Each semester some contemporary topic in the field of recreation will be studied intensively. May be repeated to a maximum of nine credits.

**KHP 782 INDEPENDENT RESEARCH.** (3)
Systematic investigation of a problem selected from the areas of health, safety, physical education or recreation. Satisfies the research requirement for the Master's degree in Plan B. Repeatable with new problem. May be repeated to a maximum of nine credits.

## RECREATION

**KHP 280 RECREATION PROGRAM PLANNING AND LEADERSHIP.** (3)
A study of the essential elements and basic principles involved in the organization, supervision, promotion and evaluation of various types of recreation programs.

**KHP 370 FUNDAMENTALS OF CAMPING.** (2)
An introduction to camping as an educational program. Fundamental camping skills basic to group and individual camping experiences. Methods in leading, teaching, and supervising in outdoor education programs are emphasized.

**KHP 570 DESIGN AND MANAGEMENT OF FACILITIES FOR SPORT.** (3)
An introduction to the design and management of sports facilities. The course will focus on elements of planning, design and management while examining functions related to maintenance, security, operations budgeting and evaluation The course will be presented primarily in lecture format utilizing guest speakers but will also include facility visitations as integral parts of the course. Prereq: Upper division PHED majors or HPER major or consent of instructor.

**KHP 573 MANAGEMENT OF SPORT.** (3)
An introduction to the five functions of management: planning, organizing, staffing, directing and controlling, and their application to organized sport settings. Prereq: Upper division PHED major or HPER major or consent of instructor.

**KHP 576 INTRAMURAL AND SPORTS CLUB ADMINISTRATION.** (3)
This course will provide the student with a broad theoretical base in intramural sports club programming and administration, together with an opportunity for practical experience. Philosophy and objectives, administrative concerns, and programming strategies will be addressed. Prereq: Upper division PHED major or HPER major or consent of instructor.

**KHP 577 PRACTICUM IN RECREATION.** (3-9)
Extensive practical work experiences under the immediate supervision of qualified practitioners and recreation faculty coordinator. Prereq: Recreation majors and physical education majors.

**KHP 580 INTRODUCTION TO TEAM DEVELOPMENT.** (3)
An introduction to the concept of teams to include an overview of group theory, dynamics and properties as they apply to the team development in sport and non-sport settings. Students may be required to participate in a low ropes/challenge course as part of course requirements. Prereq: Upper division PHED major or HPER major or graduate standing in the program or consent of instructor.

**KHP 585 FOUNDATIONS OF SPORT MANAGEMENT.** (3)
Overview of the broad field of sport management to include program identification, settings, career options, and competencies required for each option. Prereq: Upper division PHED major or HPER major or graduate standing in the program or consent of instructor.

## HEALTH EDUCATION

**KHP 190 FIRST AID AND EMERGENCY CARE.** (2)
A study of first aid subject matter and orientation in the various first aid teaching methods. Lectures and demonstrations on first aid measures with skill training. American Red Cross Certificate made available. Lecture, one hour; laboratory, two hours.

**KHP 220 SEXUALITY EDUCATION.** (2)
This course is designed to prepare educators to offer sexuality education in the schools. Emphasis is placed on justification of sexuality education, relevant content, appropriate teaching techniques, and precautions to take when teaching sexuality education.

**KHP 222 DRUG EDUCATION.** (2)
This course is designed to prepare educators to offer drug education in the schools. Emphasis is placed on the prevalence of drug use by youth; physiological, psychological, and social effects of various drugs; effective and ineffective approaches to drug abuse prevention; appropriate teaching strategies; and evaluating drug curricula.

**KHP 230 HUMAN HEALTH AND WELLNESS.** (3)
The study of health promotion, wellness, and disease prevention concepts as applied to individual, familial, and community health.

**KHP 330 PLANNING AND IMPLEMENTING SCHOOL HEALTH EDUCATION PROGRAMS.** (3)
A study of the foundations of school health education and the various factors that are involved in the processes of conceptualizing, planning, drafting, and implementing effective health education programs. Prereq: KHP 220 and KHP 230 or equivalents or permission of instructor.

***KHP 371 STUDENT TEACHING IN HEALTH EDUCATION.** (3-12)
For students who expect to teach and who meet the requirements for a teaching certificate in Health Education. Includes objectives, courses of study, methods, materials, and testing in Health Education. The course includes observation, practice, safety education, audio-visual aids and planning conferences with supervising teacher. Six-24 lab hours per week. May be taken on a pass/fail basis only. Prereq: Admission to the Teacher Education Program in Health.

**KHP 380 HEALTH EDUCATION IN THE ELEMENTARY SCHOOL.** (2)
Presents health concepts to be taught in the elementary school. A brief discussion of the school health program and a review of instructional methods appropriate to health education in the elementary school are presented. Prereq: Admission to elementary or early childhood teacher education program or consent of instructor.

**KHP 430 METHODS OF TEACHING HEALTH EDUCATION.** (3)
A variety of contemporary teaching methods appropriate for use in grades K-12 will be presented. Students will be exposed to these methods through textbook and outside readings and through observation of the instructor, public school teachers, and peer teachers. Methods will be critically examined for effectiveness in the cognitive, affective, and behavioral areas. Prereq: KHP 220, 230, or equivalent or consent of instructor via permit; and admission to Teacher Education Program or consent of instructor via permit.

**KHP 509 WORKSHOP IN HEALTH AND SAFETY.** (1-3)
Designed as a variable topic course including aspects of school health or safety education with emphasis upon the needs of teachers. May be repeated to a maximum of six credits.

**KHP 535 SCHOOL HEALTH DILEMMAS OF SPECIAL POPULATIONS.** (3)
The course studies the physical, emotional, cognitive, moral and social health dilemmas of special populations. Emphasis is on the health dilemmas of special groups that the prospective teacher may encounter in the classroom (i.e., poor, disabled, migrants, rural children, urban children, children from single parent homes, abused children, etc.) Prereq: KHP 220, KHP 230 or permission of instructor.

**KHP 609 SEMINAR IN HEALTH AND SAFETY EDUCATION.** (3)
Overview of the problems confronting persons in these fields and selected research findings applicable to these areas. Emphasis is given to gaining a better understanding of research data and to a greater utilization of research findings in both school and community health and safety endeavors. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**KHP 694 INDEPENDENT STUDY IN HEALTH EDUCATION.** (1-3)
A specific topic in Health Education related to the student's interests and program needs is selected for intensive study. Work to be supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**KHP 781 PRO SEMINAR IN KHP (Subtitle required).** (1-3)
Advanced study of topics of current importance in health education, physical education and recreation. May be repeated under a different subtitle to a maximum of nine credits. Prereq: Consent of instructor.

## LA Landscape Architecture

**LA 205 HISTORY OF LANDSCAPE ARCHITECTURE.** (3)
A study of landscape design through past civilizations and how these have influenced our present approach to dealing with our landscape.

**LA 206 CONTEMPORARY LANDSCAPE ARCHITECTURE.** (3)
A survey of contemporary landscape architecture, its evaluation and implications for the future of the practice. Prereq: LA 205.

**LA 801 LANDSCAPE ARCHITECTURE DESIGN STUDIO I— DESIGN COMMUNICATION.** (6)
Instruction and exploration of design drawing and presentation graphics as it relates to environmental awareness and landscape architectural problem-solving. Lecture, two hours; studio, 12 hours. Prereq: ARC 102 or with consent of the instructor.

**LA 802 LANDSCAPE ARCHITECTURE DESIGN STUDIO II.** (6)
Investigation into design principles and processes and their application in solving landscape architectural problems. Includes advanced graphic techniques and examination of landscape architectural projects in the local area. Lecture, two hours; studio, 12 hours. Prereq: LA 801 or with consent of the instructor.

**LA 810 LANDSCAPE CONSTRUCTION I.** (4)
A study of landscape architecture construction materials such as paving types and their applications. Development of skills in grading, drainage, and preparation of working drawings and materials specifications. Lecture, two hours; studio, six hours. Prereq: CE 100 or equivalent or permission of the instructor.

**LA 812 LANDSCAPE CONSTRUCTION II.** (3)
A continuation of the study of landscape construction to develop competencies in performing calculations necessary to solve problems of simple structures, subsurface drainage systems, and road alignment. Lecture, two hours; studio, two hours. Prereq: LA 810.

**LA 831 LANDSCAPE ARCHITECTURE DESIGN STUDIO III.** (6)
Studio design course emphasizing design process and principles in the development of design solutions for a variety of projects. Lecture, two hours; studio, 12 hours. Prereq: LA 801, 802 and ARC 101, 102 with a minimum grade of C, and HOR 327 and 329.

**LA 832 LANDSCAPE ARCHITECTURE DESIGN STUDIO IV.** (6)
Studio design course with emphasis on project-type design and an introduction to large scale site planning. Lecture, two hours; studio, 12 hours. Prereq: LA 831 with a minimum grade of C.

**LA 850 LANDSCAPE ARCHITECTURE GRAPHICS.** (3)
A study of landscape architecture graphics including freehand sketching, plan, section, and perspective drawing. Rendering techniques in both black and white and color will be explored with a variety of media including pencil, marker, pastel, and airbrush. Lecture, two hours; studio, two hours per week. Prereq: May not be taken with or after LA 852; non-LA majors must have permission of instructor.

**LA 851 STUDIES IN LANDSCAPE ARCHITECTURE: PLANTING DESIGN.** (3)
A detailed study of the use of various ornamental and native plant materials to express the basic design principles and functions in the landscape. Lecture, two hours; practicum, two hours. Prereq: One course in ornamental plants or permission of the instructor.

**LA 852 DESIGN COMMUNICATIONS.** (3)
The course will focus upon the need for effective design communication with an emphasis placed on multi-media presentations. Subject areas include: the role of communication in the design process, preparing presentations, delivering presentations and tools for presentations. Lecture, two hours; laboratory, two hours. Prereq: LA 801 and LA 802 or permission of instructor.

**LA 853 TOPICS IN URBAN DESIGN.** (3)
Exploration of topics related to urban design, specific topics will be analyzed through case studies of historical and contemporary urban spaces. Lecture, two hours; laboratory, two hours. Prereq: LA 801 and LA 802 or permission of instructor.

**LA 854 HISTORIC LANDSCAPE PRESERVATION.** (3)
An introduction to historic landscape preservation philosophy, strategies, and methods. Exploration of regional landscape preservation case studies and application of preservation principles and methods to solve landscape preservation problems with an emphasis on process. Lecture, two hours; studio, two hours per week. Prereq: LA 206 and LA 801 or permission of instructor.

**LA 895 INDEPENDENT WORK IN LANDSCAPE ARCHITECTURE.** (1-6)
Advanced topical studies in landscape architecture allowing for individual research or a work/travel experience coordinated with academic pursuits. May be repeated to a maximum of nine credits. Prereq: Permission of faculty.

**LA 901 REGIONAL LAND USE PLANNING AND DEVELOPMENT.** (6)
An introduction to regional planning principles and their relationship to the physical, social, and visual environment. The application of land use planning methods including use of the computer. Lecture, three hours; practicum, six hours.

**LA 902 ADVANCED LANDSCAPE ARCHITECTURE STUDIO I.** (6)
Application of landscape architecture design principles to solve problems at a variety of scales emphasizing process as well as form generation in a creative and historic context. Lecture, two hours; studio, ten hours. Prereq: LA 832.

**LA 903 ADVANCED LANDSCAPE ARCHITECTURE STUDIO II.** (6)
Advanced work on site design, site engineering, construction, and cost estimating. Students will develop a comprehensive set of working drawings while applying the methods and principles commonly used in the landscape architecture profession. Lecture, two hours; studio, 12 hours. Prereq: LA 902 with a minimum grade of "C" and LA 812.

**LA 951 SENIOR PROJECT.** (3)
A major research, investigation or design project to serve as the capstone experience in landscape architecture. Prereq: Senior landscape architecture major and an approved project proposal.

## LAS Latin American Studies

**LAS 201 INTRODUCTION TO LATIN AMERICA.** (3)
An interdisciplinary approach to the people, culture and development of the Latin American republics. Attention will be concentrated on significant aspects of the indigenous peoples, geography, economic processes, gender roles, social structures and politics of Latin America, with special attention paid to value structures and value conflicts. Musical, literary and artistic expression in Latin America will also be introduced. Team taught, with a course coordinator from the LAS faculty.

**LAS 395 INDEPENDENT WORK IN LATIN AMERICAN STUDIES.** (3)
Directed study for students wishing to do specialized work on a topic related to the Latin American Studies area. May be repeated to a maximum of six credits. Prereq: LAS 201 and six hours course work from approved LAS courses.

**LAS 401 DIRECTED RESEARCH IN LATIN AMERICAN STUDIES.** (3)
Research on an interdisciplinary topic approved by the LAS Advisory Committee in the area of Latin American Studies. Prereq: Major in Latin American Studies; senior standing.

## LIN Linguistics

**LIN 211 INTRODUCTION TO LINGUISTICS.** (3)
Introduction to the scientific study of human language. Emphasis on the fundamental principles of linguistic theory; applications of these principles in the investigation of grammatical structure, language change, regional and social dialect variation, and the acquisition of language by children. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Two college semesters or two high school years of a foreign language. (Same as ENG 211.)

**LIN 395 INDEPENDENT WORK.** (3)
Study of special problems in linguistics under the direction of an instructor in the linguistics program. Prereq: LIN 211; major and 3.0 in linguistics or consent of instructor.

**LIN 515 PHONOLOGICAL ANALYSIS.** (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Includes fieldwork on the phonology of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ANT/ENG 515.)

**LIN 516 GRAMMATICAL ANALYSIS.** (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Includes fieldwork on the morphology and syntax of a non-Indo-European language; within a given academic year, the same language serves as the basis for fieldwork in ANT/ENG/LIN 515 and ANT/ENG/LIN 516. Prereq: ENG/LIN 211 or equivalent. (Same as ANT/ENG 516.)

**LIN 517 SPECIAL TOPICS IN LINGUISTICS (Subtitle required).** (3)
The focus will be on intensive study of problems and issues that do not fall under linguistics course headings. These may have an interdisciplinary emphasis, or they may concentrate on some special topics of current research. All topics will be subject to review by the director of the program. May be repeated under different subtitle to a maximum of six credits. Prereq: Consent of instructor.

**LIN 519 HISTORICAL LINGUISTICS.** (3)
Language change; reconstruction of linguistic systems; language classification; comparative linguistics; temporal, spatial, and social context of language change. Prereq: ANT 215, ENG/LIN 211, or ENG 414G; or equivalent. (Same as ANT 519.)

**LIN 617 STUDIES IN LINGUISTICS (Subtitle required).** (3)
A comprehensive investigation of some designated topic in general or applied linguistics. May be repeated to a maximum of nine credits under different subtitles. Prereq: An introductory course in linguistics (ANT 215, ENG/LIN 211, or ENG 414G) or permission of instructor. (Same as ENG 617).

## LIS Library and Information Science

**LIS 504 INFORMATION IN SOCIETY.** (3)
An introduction to the nature of information (both utilitarian and aesthetic) in contemporary society, and to the role played by libraries and other information organizations in disseminating that information. Emphasis is on developing perspective.

**LIS 510 CHILDREN'S LITERATURE AND RELATED MATERIALS.** (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with multimedia materials with emphasis on the needs and interests of children. Covers media for use by and with children from preschool through grade six.

**LIS 513 LITERATURE AND RELATED MATERIALS FOR EARLY ADOLESCENCE.** (3)
A study of integrated media to support the curriculum of the middle school. Emphasis is placed on evaluating literature appropriate for early adolescent problems and interests.

**LIS 514 INFORMATION RESOURCES AND SERVICES FOR YOUNG ADULTS.** (3)
A consideration of the special characteristics and needs of young adults approximately 12-20 years old. Emphasis given to the literature and information resources and services in all types of libraries designed to meet their needs.

**LIS 530 INFORMATION SOURCES AND SERVICES.** (3)
An introduction to basic information sources and services provided by libraries and information organizations. Consideration is also given to the ethics of information services, the user-system interface including question-negotiation and the formulation of effective search strategies, and the evaluation of information sources and information services.

**LIS 535 INFORMATION STORAGE AND RETRIEVAL.** (3)
An introduction to principles and practices of information analysis, organization, storage, retrieval and dissemination. Examines the structure of bibliographic records, indexing processes, indexing languages, catalogs and files, storage media, retrieval strategies and information delivery systems.

**LIS 547 ADMINISTRATION OF SCHOOL MEDIA CENTERS.** (3)
Examines the philosophy of the modern school, the leadership responsibilities of the librarian, and the librarian's role in implementing effective information services. Considers methods of assisting faculty in the effective use of information in all media, the relation of the individual school to the district materials center, and the type of personnel, equipment and collections which are needed in each.

**LIS 550 INTRODUCTION TO CATALOGING AND CLASSIFICATION.** (3)
Introductory study of types of bibliographic records and the fundamentals of bibliographic description and subject analysis of print and nonprint information. Includes brief introduction to online cataloging.

**LIS 560 MANAGEMENT IN LIBRARY AND INFORMATION SCIENCE.** (3)
An introduction to the basic elements of management and how these are applied to the effective administration of information systems. Focus will be placed on two major roles in a system, the person who is supervised as well as the manager or supervisor. Examination of the functions of planning, organization, staffing and controlling as well as the theories of management and the effective use of these in an information system.

**LIS 575 PROFESSIONAL FIELD EXPERIENCE.** (3)
Professional field experience in a library or other information-related organization. Student assumes entry level professional duties and responsibilities in an operational setting under the close supervision of an information professional. Available only to those students lacking similar experience and may not be repeated. Requires minimum of 140 hours of experiential learning, and the completion of a term paper or special project under the direction of the course coordinator. Prereq: Completion of 18 hours of graduate work in library and information science and consent of course coordinator.

**LIS 576 SCHOOL MEDIA PRACTICUM.** (1-12)
Supervised experience at the elementary and secondary levels in school library media centers. Required for students seeking certification as school/media librarians in Kentucky. Experience will be under the joint supervision of college faculty and cooperating media librarians. Prereq: Admission to Teacher Education Program and consent of instructor.

**†LIS 602 HISTORY OF BOOKS AND PRINTING TO 1800.**

**†LIS 603 HISTORY OF BOOKS AND PRINTING 1800 TO THE PRESENT.**

***LIS 604 LIBRARY AND BOOK HISTORY.** (3)
Development of libraries and books from earliest time to the present with special reference to their relationship to contemporary social, economic, cultural and political trends. Emphasis is given to American library and book history.

**LIS 608 METHODS OF RESEARCH IN LIBRARY AND INFORMATION SCIENCE.** (3)
Basic tools, techniques and methods of research. Consideration is given to the role and purpose of research in library and information science and its relationship to research in other disciplines. Includes critical evaluation of current research in library and information science and the development of a research proposal.

**LIS 609 CURRENT PROBLEMS IN LIBRARY AND INFORMATION SCIENCE.** (3)
A seminar which examines current philosophical and managerial issues in library and information science. Focus is on the analysis, origins, evaluation and current status of these issues. Prereq: LIS 530, LIS 550, and LIS 560.

**LIS 610 CREATIVE LIBRARY PROGRAMS FOR CHILDREN.** (3)
A study of the oral tradition and its place in the cultural heritage of today. An introduction to the principles of storytelling, selection of stories, practice in telling, program planning, and development of creative visual forms. Prereq: LIS 510 and permission of instructor.

**LIS 611 CRITICAL ANALYSIS OF CHILDREN'S LITERATURE.** (3)
Advanced study of book evaluation, literary criticism, children's book publishing, awards, and current trends in the field. Individual projects require extensive critical reading. Prereq: LIS 510 and permission of instructor.

**LIS 618 ADULT INFORMATION NEEDS AND SERVICES.** (3)
The study of adult reading and information needs, interests and abilities; developmental psychology and life-long learning concepts. Selection and evaluation of materials and their use in designing and implementing an effective program of library services to adults.

**†LIS 620 HISTORICAL AND ANALYTICAL BIBLIOGRAPHY.**

**LIS 622 SOCIAL SCIENCE INFORMATION.** (3)
The content and structure of bibliographic and other information resources in the social sciences. Consideration of formal and informal communication within the social sciences with emphasis on information sources and services in anthropology, history, business, law, political science, psychology, economics, education, geography, sociology, and other closely related subjects. Prereq: LIS 530.

**LIS 623 INFORMATION IN THE HUMANITIES.** (3)
The content and structure of bibliographic and other information resources in the humanities. A consideration of formal and informal communication within the humanities with emphasis on information sources and services in religion, philosophy, literature, linguistics, visual arts, music, dance, theatre, film and other closely related subjects. Prereq: LIS 530.

**LIS 624 INFORMATION IN SCIENCE AND TECHNOLOGY.** (3)
The content and structure of bibliographic and other information resources in science and technology. A consideration of formal and informal communication in science and technology with emphasis on sources and services in agriculture, astronomy, biology, chemistry, mathematics, natural resources, zoology, and other closely related subjects. Prereq: LIS 530.

**LIS 626 GOVERNMENT PUBLICATIONS.** (3)
Study of the nature and scope of government documents, including problems and methods of acquisition, organization, and reference use of federal, state, local and international publications. Prereq: LIS 530 or equivalent.

**LIS 630 ONLINE INFORMATION SYSTEMS AND SERVICES.** (3)
Focus on online information systems and services and their management in libraries and information centers. Consideration given to concepts of online information retrieval, major commercial information services, online public access catalogs, CD/ROM-based information systems, and basic online search techniques and strategies. Prereq: LIS 530; prereq or concur: LIS 535.

**LIS 636 MICROCOMPUTERS IN LIBRARIES AND INFORMATION CENTERS.** (3)
Examines microcomputer software applications commonly used in libraries and information centers. Consideration given to the structure of microcomputer operating systems, and the elements of software evaluation.

**LIS 637 INFORMATION TECHNOLOGY.** (3)
Study of computer and communication technology used in modern information storage and retrieval systems. Consideration also given to managing microcomputer services, hardware evaluation and selection, and system security.

**LIS 640 HEALTH SCIENCES LIBRARIES.** (3)
A survey of health sciences libraries including a study of information needs, sources, and services in the health sciences. Consideration is also given to technical services functions in health sciences libraries, the management of health sciences libraries, and current trends and developments. Prereq: LIS 530.

**LIS 641 LAW LIBRARIANSHIP.** (3)
A study of the materials of legal research and reference work. Emphasis is placed on the methods of effective research and the actual use of legal materials in the solution of practical reference problems. The selection, cataloging, classification, and storage of materials in a law collection are considered. The specialized requirements of law librarianship and law library administration are treated. Prereq: Consent of instructor.

**LIS 643 ARCHIVES AND MANUSCRIPTS MANAGEMENT.** (3)
This course is designed to cover the management, care, and servicing of manuscript and archival material. Attention will also be given to criteria for building an archival/manuscript collection in a repository and to the description and interpretation of its holdings in guides and catalogs for the use of researchers. Prereq: LIS 535 or consent of instructor.

**LIS 645 PUBLIC LIBRARIES.** (3)
An analysis of public library objectives and of the services provided and techniques employed to achieve them. Some attention is given to special problems of public library management and to trends in public library development. Prereq: LIS 504.

**LIS 646 ACADEMIC LIBRARIES.** (3)
History, aims and functions of university and college libraries including organization, collection building and evaluation, finance and personnel. Recent trends in national and regional cooperation. Undergraduate libraries, community colleges and the "library college" will also be reviewed. Prereq: LIS 504.

**LIS 647 CURRENT TRENDS IN SCHOOL MEDIA CENTERS.** (3)
An intensive study of trends in school media centers with emphasis upon research and current programs. Prereq: School library media experience.

**LIS 650 TECHNICAL PROCESSING SYSTEMS.** (3)
A survey of manual and computer-based technical processing systems in libraries. Consideration given to circulation, acquisitions, cataloging and serial control systems. Trends and developments in technical processing, files and records management, and technical processing procedures and activities are examined. Prereq: LIS 550 and LIS 560.

**LIS 651 LIBRARY AND INFORMATION NETWORKS.** (3)
An analysis of the structure and governance, topology, technology, and service functions of networks based on electronic telecommunications and technology. Examines the impact of networks on information users, settings, and organizations nationally and internationally. Prereq: LIS 535 or consent of instructor.

**LIS 655 DESCRIPTIVE CATALOGING.** (3)
An advanced study of principles and standards of bibliographic description for print and nonprint information. Emphasis will be on the Anglo-American Cataloging Rules and on the description of monographic and serial publications. Prereq: LIS 550 or consent of instructor.

**LIS 656 SUBJECT CATALOGING AND CLASSIFICATION.** (3)
An advanced study of subject analysis of library materials, including subject cataloging and subject classification. Prereq: LIS 550 or consent of instructor.

**LIS 659 COLLECTION DEVELOPMENT.** (3)
Intellectual and administrative aspects of building, maintaining and evaluating library collections. Topics include: library cooperation; national standards; the writing and implementation of collection policies; strategies of selection and evaluation; contemporary publishing and the book trade. Prereq: LIS 530.

**LIS 660 ADMINISTRATIVE BEHAVIOR IN LIBRARY MANAGEMENT.** (3)
An emphasis upon human behavior in library administration including an understanding of group process, interpersonal relationships, communications, motivation, leadership, and developing an awareness of self in the administrative process. Prereq: LIS 560.

**LIS 668 INFORMATION SYSTEMS DESIGN.** (3)
Study of concepts and methods of information system design and development with particular relevance to library and information center applications. Emphasis is given to modeling of system functions, data, and processes of computer-based information systems including the development of small scale information systems. Prereq: LIS 636.

**LIS 690 SPECIAL TOPICS IN LIBRARY AND INFORMATION SCIENCE.** (1-3)
Intensive study of one aspect of library and information science under the leadership of an authority in the area. May be repeated to a maximum of six semester hours when topics vary.

***LIS 695 INDEPENDENT STUDY IN LIBRARY AND INFORMATION SCIENCE.** (3)
Opportunity for directed study in a subject, issue, or problem of professional interest to the student, and which is not treated in a regular course. Student may structure independent study as independent research or as independent reading, and a substantial written report is required in either case. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**LIS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**LIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

## MA Mathematics

***MA 108R INTERMEDIATE ALGEBRA.** (3)
This course is remedial in nature and covers material commonly found in second year high school algebra. Specific topics to be discussed include numbers, fractions, algebraic expression, simplifying, factoring, laws of exponents, linear equations, simple graphs and polynomial algebra. This course is not available for degree credit toward a bachelor's degree. Credit not available on the basis of special examination. Prereq: One year of high school algebra. Recommended for students with a Math ACTE score of 17 or less, or consent of department.

***MA 109 COLLEGE ALGEBRA.** (3)
Selected topics in algebra and analytic geometry. Develops manipulative algebraic skills required for successful calculus study. Includes brief review of basic algebra, quadratic formula, systems of linear equations, introduction to analytic geometry including conic sections and graphing. This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 112, 123, 162, 199, 201 and 202. Credit not available on the basis of special examination. Prereq: Two years of high school algebra and a Math ACTE score of 18 or above, or MA 108R, or math placement test.

***MA 110 ANALYTIC GEOMETRY AND TRIGONOMETRY.** (4)
This is a course specifically designed for students intending to enroll in a calculus sequence. Topics will include trigonometric functions, exponentials and logarithms, graphs, polar coordinates, conic sections and systems of conics. Students may not receive credit for MA 110 and either of MA 109 or MA 112. This course is not available for credit to students who have received credit in any higher numbered mathematics course except for MA 123, 162, 199, 201 or 202. Credit is not available by special examination. Lecture, three hours; recitation, two hours per week. Prereq: Two years of high school algebra and a Math ACTE score of 23 or above, or consent of department.

**MA 112 TRIGONOMETRY.** (2)
A standard course. Includes trigonometric functions, identities, multiple analytic formulas, laws of sines and cosines and graphs of trigonometric functions. This course is not available to persons who have received credit for any mathematics course of a higher number with the exception of MA 113, 123, 131, 132 and 162. Credit not available by special examination. Prereq: Two years of high school algebra or MA 108R.

***MA 113 CALCULUS I.** (4)
A course in one-variable calculus, including topics from analytic geometry. Derivatives and integrals of elementary functions (including the trigonometric functions) with applications. Lecture, three hours; recitation, two hours per week. Prereq: Math ACTE score of 26 or above, or MA 109 and MA 112, or consent of department.

**MA 114 CALCULUS II.** (4)
A continuation of MA 113, primarily stressing techniques of integration. Lecture, three hours; recitation, two hours per week. Prereq: High school trigonometry or MA 112; and a grade of C or better in MA 113, MA 132, or MA 223.

***MA 123 ELEMENTARY CALCULUS AND ITS APPLICATIONS.** (3)
An introduction to differential and integral calculus, with applications to business and the biological and physical sciences. Not open to students who have credit in MA 113. Prereq: Math ACTE score of 21 or above, or MA 109 or math placement test.

**MA 132 CALCULUS FOR THE LIFE SCIENCES.** (3)
Introduction to integral calculus, integration of logarithmic and exponential functions. Applications to the life sciences including biochemical rates and reactions and radioactive decay. An introduction to biological models and their associated differential equations. Prereq: MA 123 or consent of instructor.

**MA 162 FINITE MATHEMATICS AND ITS APPLICATIONS.** (3)
Finite mathematics with applications to business, biology, and the social sciences. Linear functions and inequalities, matrix algebra, linear programming, probability. Emphasis on setting up mathematical models from stated problems. Prereq: MA 109 or equivalent.

***MA 193 CALCULUS WORKSHOP I.** (1-2)
Intensive group study and practice relevant to MA 113. Admission only by consent of instructor. Laboratory, two hours per week per credit. Offered on a pass-fail basis only. Coreq: MA 113.

***MA 194 CALCULUS WORKSHOP II.** (1-2)
Intensive group study and practice relevant to MA 114. Admission only by consent of instructor. Laboratory, two hours per week per credit. Offered on a pass-fail basis only. Coreq: MA 114.

**MA 199 TOPICS IN MATHEMATICS.** (3)
Topics in mathematics to acquaint students in non-technical fields with ideas and methods of mathematics. Topics vary from semester to semester at the discretion of the instructor.

**MA 201 MATHEMATICS FOR ELEMENTARY TEACHERS.** (3)
Basic concepts of measurement, geometry, probability, and statistics. Recommended only for majors in early elementary and middle school education. Prereq: MA 109.

**MA 202 MATHEMATICAL PROBLEM SOLVING FOR ELEMENTARY TEACHERS.** (3)
Development of mathematical problem solving skills. Students will solve problems from such areas as algebra, geometry, probability, number theory, and logic. Credit not available on the basis of special examination. Prereq: A grade of "C" or better in MA 201. Also recommended: a course in logic (e.g. PHI 120) or a course in calculus (e.g. MA 123).

**MA 213 CALCULUS III.** (4)
MA 213 is a course in multivariate calculus. Topics include three-dimensional vectors calculus, partial derivatives, double and triple integrals, sequences, and infinite series. Lecture, three hours; recitation, two hours per week. Prereq: MA 114 or equivalent.

**MA 214 CALCULUS IV.** (3)
MA 214 is a course in ordinary differential equations. Emphasis is on first and second order equations and applications. The course includes series solutions of second order equations and Laplace transform methods. Prereq: MA 213 or equivalent.

**MA 261 INTRODUCTION TO NUMBER THEORY.** (3)
Topics from classical number theory, including discussions of mathematical induction, prime numbers, division algorithms, congruences, and quadratic reciprocity. Prereq: Consent of instructor.

**MA 310 MATHEMATICAL PROBLEM SOLVING FOR TEACHERS.** (3)
Heuristics of problem solving. Practice in solving problems from algebra, number theory, geometry, calculus, combinatorics and other areas. Primarily for middle and secondary school teachers. Prereq: MA 123 or MA 113.

**MA 320 INTRODUCTORY PROBABILITY.** (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 213 or equivalent. (Same as STA 320.)

**MA 321 INTRODUCTION TO NUMERICAL METHODS.** (3)
Floating point arithmetic. Numerical linear algebra; elimination with partial pivoting and scaling. Polynomial and piecewise polynomial interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computing center. Prereq: MA 213 and CS 221 or equivalent. Knowledge of a procedural computer language is required. (Same as CS 321.)

**MA 322 MATRIX ALGEBRA AND ITS APPLICATIONS.** (3)
Algebra of matrices, elementary theory of vector spaces and inner product spaces, the solution of simultaneous linear equations using Gaussian elimination and triangular factorization. Orthogonal projections, pseudo inverse and singular value decomposition, least squares approximation. Determinants, eigenvalues and eigenvectors, diagonalization. Prereq: MA 114.

**MA 330 HISTORY OF MATHEMATICS.** (3)
A survey of the development of mathematics. Topics may include: the Egyptians and Babylonians, mathematics of the Greek Classical Age, Euclid and the Alexandrian School, the Renaissance, Fermat and the beginning of calculus, the work of Newton and Leibnitz, nineteenth century geometry, analysis and set theory. Prereq: MA 114.

**MA 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE.** (3)
Topics include permutations, combinations and partitions; inclusion-exclusion principle; generating functions and recurrence relations; elementary algorithms concerning graphs and trees; generation of random combinatorial and graphical examples; Boolean algebra, Boolean functions, switching circuits and mathematical logic; introduction to algebraic coding theory. Prereq: CS 245 and CS 270. Restricted to computer science, electrical engineering, mathematics and mathematical sciences majors. Others by permission. (Same as CS 340.)

**MA 341 TOPICS IN GEOMETRY.** (3)
Selected topics in geometry including Euclidean and some non-Euclidean geometries. Prereq: Consent of instructor.

**MA 351 ELEMENTARY TOPOLOGY I.** (3)
A beginning course, with particular emphasis on point-set topology in Euclidean spaces. Prereq: MA 213 or consent of instructor.

**MA 352 ELEMENTARY TOPOLOGY II.** (3)
A continuation of MA 351, to include a discussion of metric spaces, completeness, general topological spaces, compactness, connectedness. Prereq: MA 351 or consent of instructor.

**MA 361 ELEMENTARY MODERN ALGEBRA I.** (3)
A beginning course, with particular emphasis on groups and rings. Prereq: MA 322 or consent of instructor.

**MA 362 ELEMENTARY MODERN ALGEBRA II.** (3)
A continuation of MA 361 to include a discussion of fields and topics in linear algebra. Prereq: MA 361 or consent of instructor.

**#MA 375 COMMUNICATING MATHEMATICS.** (3)
A course intended to provide understanding of and experience with contemporary mathematical communication in a modern instructional setting. Primarily intended for, but not restricted to, prospective school and college teachers of mathematics, including students who may intend to enroll in a graduate program and work as a graduate teaching assistant while pursuing an advanced degree. May be used to satisfy the general studies communications requirement. May not be counted as an upper division mathematics course in mathematics degree programs. Lecture, one hour; laboratory, four hours per week. Prereq: MA 214, MA 322, at least one of (MA 351, MA 361, MA 471), and consent of instructor.

**MA 398, 399 INDEPENDENT WORK IN MATHEMATICS.** (3 ea.)
Reading courses for upper division students of high standing. Prereq: Mathematics or mathematical sciences major and a standing of 3.0 in the department.

**MA 415G GRAPH THEORY.** (3)
Theory of linear undirected graphs, including definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. Applications of algorithms to operations research, genetics and other areas. About 55 percent of the course will be on general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: CS 101 or equivalent. (Same as CS 415G.)

**MA 416G PRINCIPLES OF OPERATIONS RESEARCH I.** (3)
The course is an introduction to modern operations research and includes discussion of modeling, linear programming, dynamic programming, integer programming, scheduling and inventory problems, and network algorithms. Prereq: MA 213 or equivalent. (Same as CS 416G.)

**MA 417G PRINCIPLES OF OPERATIONS RESEARCH II.** (3)
A continuation of MA 416 with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: CS/MA 416G and MA/STA 320, or consent of instructor. (Same as STA 417G.)

**MA 422 NUMERICAL SOLUTIONS OF EQUATIONS.** (3)
Linear equations: Gaussian elimination, special linear systems, orthogonalization, eigenproblem, iterative methods. Nonlinear equations: solutions of equations in one variable, solutions of systems of nonlinear equations. Optimization. Prereq: CS/MA 321 and MA 322; or consent of instructor. (Same as CS 422.)

**MA 432G METHODS OF APPLIED MATHEMATICS I.** (3)
Partial differentiation, Jacobians, implicit function theorem, uniform convergence of series, line and surface integrals. Green's and Stokes' theorems. Prereq: MA 214 or equivalent.

**MA 433G INTRODUCTION TO COMPLEX VARIABLES.** (3)
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorem, power series, residue theory. Prereq: MA 214.

**MA 471G ADVANCED CALCULUS I.** (3)
A careful and vigorous investigation of the calculus of functions of a single variable. Topics will include elementary topological properties of the real line, convergence limits, continuity, differentiation and integration. Prereq: MA 214 and MA 322.

**MA 472G ADVANCED CALCULUS II.** (3)
A continuation of MA 471G to functions of several variables. A careful and rigorous investigation of the extensions of the concepts of the one variable calculus to n-dimensions. Prereq: MA 471G or consent of instructor.

**MA 481G DIFFERENTIAL EQUATIONS I.** (3)
Brief review of linear differential equations and matrix algebra, eigenvalues and eigenvectors of matrices, systems of linear differential equations with constant coefficients, applications, Sturm separation and comparison theorems, Sturm-Liouville theory for second-order equations and applications. Prereq: MA 214 and MA 322.

**MA 483G DIFFERENTIAL EQUATIONS II.** (3)
A continuation of MA 481G. Topics will include perturbation theory; power series techniques and regular singular point theory; asymptotics; eigenfunction expansions; qualitative behavior of linear and nonlinear differential equations. Prereq: MA 481G or equivalent.

**MA 485G FOURIER SERIES AND BOUNDARY VALUE PROBLEMS.** (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432G or equivalent. (Same as EM 585.)

**MA 501, 502 SEMINAR IN SELECTED TOPICS.** (3 ea.)
Various topics from the basic graduate courses. Designed as a course for teachers of lower division mathematics and usually offered in connection with a summer institute. May be repeated to a maximum of six credits. Prereq: Teaching experience in the field of mathematics and consent of instructor.

**MA 506 METHODS OF THEORETICAL PHYSICS I.** (3)
The course and its sequel (MA/PHY 507) are designed to develop, for first-year graduate students, familiarity with the mathematical tools useful in physics. Topics include curvilinear coordinates, infinite series, integrating and solving differential equations of physics, and methods of complex variables. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: PHY 404G or equivalent. (Same as PHY 506.)

**MA 507 METHODS OF THEORETICAL PHYSICS II.** (3)
Continuation of MA/PHY 506. Fourier and Laplace Transforms, the special functions (Bessel, Elliptic, Gamma, etc.) are described. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: MA/PHY 506. (Same as PHY 507.)

**MA 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS.** (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as OR/STA 515.)

**MA 522 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA I.** (3)
Review of basic linear algebra from a constructive and geometric point of view. Factorizations of Gauss, Cholesky and Gram-Schmidt. Determinants. Linear least squares problems. Rounding error analysis. Stable methods for updating matrix factorizations and for linear programming. Introduction to Hermitian eigenvalue problems and the singular value decomposition via the QR algorithm and the Lanczos process. Method of conjugate gradients. Prereq: MA 322. (Same as CS 522.)

**MA 532 ORDINARY DIFFERENTIAL EQUATIONS.** (3)
Successive approximations and elementary existence theorems for scalar and vector equations, qualitative behavior of solutions as functions of initial conditions and parameters, linear systems with constant and periodic coefficients, stability theorems for second order linear and nearly linear equations, second order boundary value problems and regular singular point theory. Prereq: MA 322 and either 432G or 471G.

**MA 533 PARTIAL DIFFERENTIAL EQUATIONS.** (3)
Elementary existence theorems, equations of first order, classification of linear second order equations, the Cauchy and Dirichlet problems, potential theory, the heat and wave equations, Green's and Riemann functions, separation of variables, systems of equations. Prereq: MA 532 and MA 472G or equivalent.

**MA 537 NUMERICAL ANALYSIS.** (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent or graduate standing or consent of instructor. Knowledge of a procedural computer language is required. (Same as CS/EGR 537.)

**MA 538 NUMERICAL ANALYSIS II.** (3)
A continuation of CS/MA 537. Roots of a nonlinear equation and minimization of a function of a single variable. Linear difference equations. Numerical methods for ordinary differential equations: initial value problems, and elementary techniques for two-point boundary value problems. Prereq: A grade of B or better in CS/MA 321 or CS/MA 537 or equivalent. (Same as CS 538.)

**MA 551 TOPOLOGY I.** (3)
Topological spaces, products, quotients, subspaces, connectedness, compactness, local compactness, separation axioms, convergence. Prereq: Consent of instructor.

**MA 561 MODERN ALGEBRA I.** (3)
Algebraic structures, quotient structures, substructures, product structures, groups, permutation groups, groups with operators, and the Jordan-Holder theorem. Prereq: Consent of instructor.

**MA 565 LINEAR ALGEBRA.** (3)
Review of finite dimensional linear algebra, the rank of a matrix, systems of linear equations, determinants, characteristic and minimal polynomials of a matrix, canonical forms for matrices, the simplicity of the ring of linear mappings of a finite dimensional vector space, the decomposition of a vector space relative to a group of linear mappings and selected topics of a more advanced nature. Prereq: MA 322 or consent of instructor.

**MA 570 MULTIVARIATE CALCULUS.** (3)
A self-contained course in n-dimensional analysis, including the general form of Stokes' theorem. Prereq: MA 432G or equivalent.

**MA 571 ANALYSIS I.** (3)
Sequences and series of real and complex numbers, sequences of functions. Riemann-Stieltjes integration, Lebesque measure and integration. Prereq: MA 471G or consent of instructor.

**MA 611 INDEPENDENT WORK IN MATHEMATICS.** (3-9)
Reading course for graduate students in mathematics. May be repeated to a maximum of nine credits. Prereq: Major in mathematics, a standing of at least 3.0 and consent of instructor.

**MA 613 PROBLEMS SEMINAR IN OPERATIONS RESEARCH.** (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as EE/STA/BA/OR 619.)

**MA 615 CONVEX ANALYSIS AND OPTIMIZATION.** (3)
Convex sets and convex functions. Separation and Helly-type theorems. Duality theory and minimax theorems. Algorithmic procedures for constrained and unconstrained problems. May be repeated to a maximum of six credits. Prereq: MA 472G or consent of instructor.

**MA 616 NUMERICAL TECHNIQUES FOR NONLINEAR OPTIMIZATION.** (3)
Unconstrained optimization, Kuhn-Tucker conditions for nonlinear programs (constrained optimization). Solutions procedures: methods of feasible directions, penalty methods, approximation methods, the method of generalized Lagrangians. Discrete optimal control (dynamics formulation). Solutions methods for control problems: decomposition and structured problems. Prereq: MA 515 or consent of instructor. (Same as OR 616.)

**MA 617 MARKOVIAN DECISION PROBLEMS.** (3)
Control of discrete-time Markov processes by dynamic programming inventory theory. Computational approaches to control of Markov chains. State space methods: modeling of engineering and economic systems by linear stochastic difference equations. The discrete-time matrix Riccati equation, Kalman filtering. Optimal control of linear stochastic difference equations with complete or incomplete state information and with quadratic cost criterion. Prereq: STA 624. (Same as OR 617.)

**MA 618 COMBINATORICS AND NETWORKS.** (3)
Graphs, networks, min flow-max cut theorem and applications; transportation problems, shortest route algorithms, critical path analysis, multicommodity networks, covering and packing problems; integer programming, branch-and-bounding techniques, cutting plane algorithms, computational complexity. Prereq: MA 515, can be taken concurrently with MA 515. (Same as OR 618.)

**MA 622 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA II.** (3)
Numerical solution of matrix eigenvalue problems and applications of eigenvalues. Normal forms of Jordan and Schur. Vector and matrix norms. Perturbation theory and bounds for eigenvalues. Stable matrices and Lyapunov theorems. Nonnegative matrices. Iterative methods for solving large sparse linear systems. (Same as CS 622.)

**MA 625 NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS.** (3)
Numerical solution techniques for boundary value problems for ordinary differential equations, and for parabolic and elliptic partial differential equations. Prereq: CS/MA/EGR 537 or consent of instructor.

**MA 628 APPLIED MATHEMATICS IN THE NATURAL SCIENCES II.** (3)
Continuation of MA/EM 527 with emphasis on special topics and techniques applied to partial differential equations that occur in various physical field theories. Field equations of continuum mechanics of solids and fluids are reviewed. The method of characteristics, elliptic functions and integrals, Legendre polynomials, Mathieu functions, integral equations and transforms, and the methods of potential theory are examples of selected topics studied in introductory applications. Intended for students in applied mathematics, science and engineering. Prereq: MA/EM 527. (Same as EM 628.)

**MA 630 MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY I.** (3)
A modern treatment of stochastic processes from the measure theoretic point of view with applications to control theory; the basic notions of probability theory, independence, conditional expectations, separable stochastic processes, martingales, Markov processes, second order stochastic processes. Prereq: MA 432G and 670.

**MA 631 MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY II.** (3)
A continuation of MA 630. Representation of stationary processes by stochastic integrals. Stochastic differential equations. Probability measures on function spaces. Absolute continuity of measures associated with stochastic processes. Weak convergence of probability measures on metric spaces. Prereq: MA 630.

**MA 632 ADVANCED DIFFERENTIAL EQUATIONS.** (3)
General existence and uniqueness theorems, linear systems, regular and singular eigenvalue problems, stability theory, nonlinear oscillation theory, asymptotic theory, equations with retarded argument. Prereq: MA 532 or consent of instructor.

**MA 633 THEORY OF PARTIAL DIFFERENTIAL EQUATIONS.** (3)
A continuation of MA 533. Topics may include hypoelliptic operators and interior regularity of solutions; P(D)-convexity and existence theorems; regularity up to the boundary; applications of the maximum principle; semigroup theory for evolution equations; perturbation methods; well-posed and improperly posed problems; equations with analytic coefficients; a symptotic behavior of solutions; nonlinear problems. Prereq: MA 533.

**MA 639 RESEARCH PROJECTS IN BIOLOGICAL MODELING.** (3)
Mathematical modeling of selected biological systems. Small groups will define the problem, develop a mathematical model, and examine its biological implications. Systems to be modeled may be chosen from any area of the life sciences depending on the experience and interest of the group members. The groups will be supervised by a faculty member from biological sciences and one from mathematics. Prereq: MA/BIO 411G or consent of instructor. (Same as BIO 639.)

**MA 641, 642 DIFFERENTIAL GEOMETRY.** (3 ea.)
Tensor products, exterior algebra, differentiable maps, manifolds, geodesics, metric properties of curves in Euclidean fundamental forms, surfaces. Prereq: Consent of instructor.

**MA 651 TOPOLOGY II.** (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

**MA 654 ALGEBRAIC TOPOLOGY I.** (3)
Homotopy and homology theories, complexes and applications. Prereq: MA 551, 561, 651 or equivalent.

**MA 655 ALGEBRAIC TOPOLOGY II.** (3)
Singular homology theory and applications, homology of products, singular and Cech cohomology with applications. Prereq: MA 654.

**MA 661 MODERN ALGEBRA II.** (3)
Rings, fields of quotients, rings of polynomials, formal power series, modules, exact sequences, groups of homomorphisms, natural isomorphisms, algebras and tensor algebras. Prereq: MA 561 or consent of instructor.

**MA 667 GROUP THEORY.** (3)
A study of homomorphisms for groups, finite groups, solvable groups, nilpotent groups, free groups, and abelian groups. Prereq: MA 661.

**MA 670 ANALYSIS II.** (3)
Continuation of MA 571. Absolutely continuous functions on the real line, Lebesque spaces, beginning theory of Banach spaces including the Hahn-Banach, closed graph, and open mapping theorems. Prereq: MA 571 or consent of instructor.

**MA 671 FUNCTIONS OF A COMPLEX VARIABLE I.** (3)
Differentiation and integration, contour integration, poles and residues. Taylor and Laurent series, and conformal mapping. Prereq: MA 571, 670.

**MA 672 FUNCTIONS OF A COMPLEX VARIABLE II.** (3)
A continuation of MA 671 to include the Riemann Mapping theorem, Dirichlet problem, multiple valued functions, Riemann surfaces and applications. Prereq: MA 671.

**MA 673 SEVERAL COMPLEX VARIABLES.** (3)
Hartog's theorem, domains of holomorphy, pseudo-convexity, Cousin problems, differential forms, deRham's theorem, cohomology of domains of holomorhpy, Levi's problem, Weierstrauss preparation theorem, sheaves, Stein manifolds, entire functions of several variables. Prereq: MA 672.

**MA 678 MATHEMATICAL THEORY OF OPTIMAL CONTROL.** (3)
An introduction to classical calculus of variations. Optimality conditions for control problems, the Pontryagin principle, Dynamic Programming, Applications to Aerospace and Economics. Prereq: Consent of instructor.

**MA 681 FUNCTIONAL ANALYSIS I.** (3)
General theory of normed linear spaces including the Hahn-Banach separation theorems, principle of uniform boundedness and closed graph theorem. Dual spaces and representation theorems for linear functionals. Abstract measure theory and Riesz representation theorem for C(X). Prereq: MA 670 or consent of instructor.

**MA 682 FUNCTIONAL ANALYSIS II.** (3)
Weak and weak-star topologies, reflexive spaces, convexity in linear spaces, operators, adjoint operators, spectral theory and Fourier transforms. Prereq: MA 681.

**MA 715 SELECTED TOPICS IN OPTIMIZATION.** (3)
Topics will be selected from the areas of mathematical control theory, integer programming, combinatorial optimization, large scale optimization, nonlinear programming, dynamic optimization, etc. May be repeated to a maximum of nine credits.

**MA 721 SELECTED TOPICS IN NUMERICAL ANALYSIS.** (3)
Review of current research in numerical analysis. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**MA 732 SELECTED TOPICS IN DIFFERENTIAL AND INTEGRAL EQUATIONS.** (3)
Advanced topics in theory of differential (ordinary of partial) and integral equations such as topological dynamics, almost periodic solutions, stochastic differential equations, integro-differential and differential-difference equations, generalized functions as solutions, non-linear partial differential equations, singular integral equations.

**MA 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**MA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**MA 751, 752 SELECTED TOPICS IN TOPOLOGY.** (3 ea.)
Prereq: MA 651.

**MA 761 HOMOLOGICAL ALGEBRA.** (3)
Homological algebra, modules, exact sequences, functors, homological dimension, extension problems. Prereq: Consent of instructor.

**MA 764, 765 SELECTED TOPICS IN ALGEBRA.** (3 ea.)
Reports and discussion on recent advances in group theory, ring theory, and homological algebra. Prereq: MA 661 and consent of instructor.

**MA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**MA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**MA 772 SELECTED TOPICS IN THE THEORY OF COMPLEX VARIABLES.** (3)
Prereq: Consent of instructor.

**MA 773 SELECTED TOPICS IN ANALYSIS.** (3)
May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**MA 778 MATHEMATICAL SEMINAR.** (3)
May be repeated once to a total of six credits. Prereq: Consent of instructor.

## MB Microbiology

See courses listed under Biological Sciences.

## ME Mechanical Engineering

**ME 007, 008 THE ENGINEERING PROFESSION (Senior).** (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated.

**ME 101 ORIENTATION TO MECHANICAL ENGINEERING (Freshman and Transfer Students).** (1)
Introduction to the profession of mechanical engineering: its history, practice, and methods of analysis.

**ME 105 BASIC ENGINEERING GRAPHICS.** (2)
Basic Engineering Graphics involves the use of basic engineering drawing equipment with freehand sketching and use of a micro-computer graphics workstation in the study of orthographic projection, auxiliary view projection, section views, pictorial drawing, with introduction to dimensioning and tolerancing. Class, six hours.

**ME 151 MANUFACTURING ENGINEERING.** (3)
A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, production molding and production machines and processes.

**ME 220 ENGINEERING THERMODYNAMICS I.** (3)
Fundamental principles of thermodynamics. Prereq: PHY 231. Prereq or concur: MA 214.

**ME 310 ENGINEERING EXPERIMENTATION I.** (3)
An instrumentation laboratory to provide the student with an understanding of the characteristics and application of instrumentation related to basic measurements in mechanical engineering. Design and planning of experiments. Uncertainty analysis. Principles and application of technical writing and information retrieval. Lecture, two hours; laboratory, two hours. Prereq: Engineering standing, CS 221 and ME 330.

**ME 311 ENGINEERING EXPERIMENTATION II.** (3)
A laboratory to instruct the student in the performance of basic mechanical engineering components and systems. Performance of experiments, application of theory and reporting. Introduction to experimentation. Introduction to error analysis. Lecture, one hour; laboratory, four hours. Prereq: ME 310, 321, 325 and engineering standing.

**ME 321 ENGINEERING THERMODYNAMICS II.** (3)
Gas mixtures, air-water vapor mixtures. Air conditioning system design. Principles and design of energy conversion devices, power and refrigeration cycles. Principles of combustion, chemical equilibrium, one-dimensional gas dynamics. Nozzle design. Continuation of ME 220. Prereq: ME 220, MA 214, and engineering standing.

**ME 325 ELEMENTS OF HEAT TRANSFER.** (3)
Fundamental principles of conduction, convection, radiation heat transfer. Numerical methods for heat transfer problems. Design and applications of heat transfer equipment such as fins and heat exchangers. Prereq: ME 330, MA 214, CS 221 and engineering standing.

**ME 330 FLUID MECHANICS.** (3)
Introduction to the physical properties of fluids, fluid statics. Equations of conservation of mass, momentum and energy for systems and control volumes. Dimensional analysis and similarity. Principles of inviscid and real fluid flows; flow through pipes and around bodies. Application and design of fluid handling systems. Prereq: ME 220 or CME 210, CS 221, MA 214, and engineering standing.

**ME 340 INTRODUCTION TO MECHANICAL SYSTEMS.** (3)
Modeling of mechanical, thermal, hydraulic and other phenomena from a systems viewpoint. Analysis of continuous-time models for free and forced response. Laplace transforms, transfer functions and block diagrams. Introduction to numerical simulation. Analysis of higher-order systems. Prereq: EM 313, CS 221, engineering standing.

**ME 344 MECHANICAL DESIGN.** (3)
Fundamentals of design with methods of approximation. Introduction to optimum design considerations. Synthesis and problems on the design of various mechanical elements. Prereq: ME 151, EM 302, engineering standing; concur: EM 313.

**ME 346 MECHANICAL SYSTEMS DESIGN.** (3)
A course using a modified case method to teach the principles involved in designing complete mechanical systems. A unique problem is chosen each semester. The system to be designed is usually one not presently in existence, but for which a need exists. The student is required to synthesize a general solution to a problem, apply analytical techniques to arrive at a more detailed solution, and finally prepare a report presenting by freehand sketches and written descriptions his solution to the problem. Lecture, one hour; laboratory, six hours. Prereq: ME 344 and engineering standing.

**ME 347 DYNAMIC ANALYSIS OF DESIGN PROBLEMS.** (3)
A course emphasizing the role of analysis in design. Actual design objectives are met through the use of mathematical modeling techniques and the application of the principles of dynamics, kinematics and vibrations. Prereq: EM 313, engineering standing; concur: ME 344.

**ME 358 ECONOMIC ANALYSIS OF MECHANICAL SYSTEMS.** (3)
Formulation of economic relationships. Familiarization with alternate mechanical systems and application of economic principles of selection of alternates. Prereq: ME 321, engineering standing or consent of instructor.

**ME 366 THERMAL POWER SYSTEMS.** (3)
Application of basic thermodynamics, fluid mechanics and heat transfer to the analysis of thermal systems. Internal and external combustion power plant systems and noncombustion thermal systems are analyzed. Commercial aspects of thermal systems are studied. Prereq: ME 321 and Engineering standing.

**ME 371 SEMINAR.** (1)
Students will undertake literature searches on a major engineering problem and will report orally on these findings approximately once a week. A written summary of these presentations will be submitted at the end of the semester. Lecture, two hours per week. Prereq: Engineering standing.

**ME 380 TOPICS IN MECHANICAL ENGINEERING (Variable topics).** (3)
A lecture-recitation course on a topic of current interest. Modern developments in mechanical engineering will be stressed. Offered as a technical elective in mechanical engineering. May be repeated to a maximum of nine credits. Prereq: Variable, given when topic identified and engineering standing.

**ME 395 INDEPENDENT WORK IN MECHANICAL ENGINEERING.** (1-6)
Special research and problems for individual students who wish to pursue independent investigations. May be repeated to a maximum of six credits. Prereq: Consent of department chairperson via permit.

**ME 407 ENGINEERING ETHICS.** (1)
Review of the growth and development of the profession, engineering ethics, obligations to employers and peers, limits of professional responsibility, codes of ethics and enforcement, and case studies.

**ME 408 SAFETY ENGINEERING.** (2)
Review of general safety hazards, system engineering safety, fault free analysis, reliability, accident reconstruction and investigation. Case studies will be included. Concur: ME 344.

**ME 412 SENIOR DESIGN PROJECT.** (3)
A project concerned with the design of a complex system of current interest to mechanical engineers. Students will work in small groups and emphasis will be on original work. Lecture, one hour; laboratory, four hours per week. Prereq: ME 325, ME 347, ME 440, and Engineering standing.

**ME 440 DESIGN OF CONTROL SYSTEMS.** (3)
Fundamentals of automatic control theory and design; feedback control systems; transducers, detectors and actuators; types of controllers. Control system design using root-locus, Nyquist and Bode methods; compensation. Introduction to modern control theory, nonlinearities and digital control. Prereq: ME 340 and ME 101.

**ME 475G INTRODUCTION TO NUCLEAR ENGINEERING.** (3)
Introduction to basic topics of nuclear science. Interaction of radiation with matter. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, use of radioisotopes. Prereq: PHY 232, MA 214.

**ME 480G HEATING, VENTILATING AND AIR-CONDITIONING.** (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. Principles and applications of building energy requirements and thermal comfort criteria. Prereq: ME 325 and Engineering standing or consent of instructor. (Same as AEN 480G.)

***ME 501 MECHANICAL DESIGN WITH FINITE ELEMENT METHODS.** (3)
Mechanical design techniques based on the finite element method, using machine design background as the starting point. Techniques for modeling machine elements will be shown in relation to the basic FEM theory. Emphasis will be on quantifying loads, the resulting stress and deflection, and relating them to design allowables, leading to an acceptable design solution. Prereq or concur: ME 344.

**ME 505 MODELING OF MANUFACTURING PROCESSES AND MACHINES.** (3)
A study of the major manufacturing processes and equipment. Emphasis on mathematical and computer models of these processes, as used in automated manufacturing and control of these processes. Lecture, two hours; laboratory, two hours. Prereq: EM 313 and EM 302. (Same as MFS 505.)

**ME 506 COMPUTER-AIDED GRAPHICS AND DESIGN.** (3)
Development of computer graphics and interactive graphics methods and applications to problem solving and design practices. Emphasis on graphics principles, data management, interactive programming, and integrated analysis/design. Prereq: ME 344 and CS 221.

**#ME 507 DESIGN FOR MANUFACTURING.** (3)
The topics will include fundamentals of concurrent engineering, product life cycle, product specification, standardization, functional requirements and datum features, selection of materials and manufacturing processes, cost analysis, case studies on designing for quality, economy, manufacturability and productivity. Prereq: ME 344 and engineering standing. (Same as MFS 507.)

**ME 510 DYNAMICS AND DESIGN OF ROBOT MANIPULATORS.** (3)
Analysis of the design and operation of robotic systems. Emphasis on robot kinematics, dynamics, differential motion, manipulator Jacobian, motion trajectories, geometric modeling, force and vibration analyses. Various practical applications and real cases are investigated. Prereq: ME 340 or both EE 420G and EM 230. (Same as EM 510.)

**#ME 512 MANUFACTURING SYSTEMS.** (3)
This course introduces students to fundamentals of design, planning and control of manufacturing systems aided by computers. Concepts of control hardware, NC programming languages, software aspects related to NC manufacturing, programmable controllers, performance modeling of automated manufacturing systems, group technology and flexible manufacturing systems, etc. will be addressed. Prereq: Engineering standing. (Same as MFS 512.)

**ME 514 NUCLEAR REACTOR ANALYSIS AND FUEL MANAGEMENT.** (3)
Analysis of the fission process and cross section relationships. Homogeneous reactor theory. Reflected reactor multigroup methods. Design of heterogeneous reactors, including fuel considerations, burnup calculations, source terms and storage considerations. Elementary kinetic considerations are included. Prereq or concur: MA 432G.

**ME 529 APPLIED FLUID MECHANICS.** (3)
Continuation of ME 330. Problem solving for ideal and viscous flows for design and research oriented purposes. Development and application of basic equations to engineering problems with emphasis on numerical modeling using computers. Prereq: ME 330 or CE 341, CS 221, engineering standing. (Same as CE 542.)

**ME 530 GAS DYNAMICS.** (3)
Consideration of the mass, energy and force balances applied to compressible fluids. Isentropic flow, diabatic flow, flow with friction, wave phenomena and one-dimensional gas dynamics. Applications to duct flows and to jet and rocket propulsion engines. Prereq: ME 321, ME 330 and Engineering standing.

**ME 531 FLUID DYNAMICS I.** (3)
Stress at a point (introduced as a tensor of rank two). Equation of conservation of mass, rate of strain tensor, derivation of Navier-Stokes equation, source-sink flows, motion due to a doublet, vortex flow, two- and three-dimensional irrotational flow due to a moving cylinder with circulation, two-dimensional airfoils. Prereq: ME 330, MA 432G and Engineering standing.

**ME 542 KINEMATIC SYNTHESIS OF MECHANISMS.** (3)
Fundamentals in the analysis and synthesis of mechanisms including coupler curves, guided plane systems and linkage design. Prereq: ME 344, EM 313 and Engineering standing.

**ME 550 APPLICATIONS OF HEAT TRANSFER.** (3)
The three basic modes of heat transfer, i.e., conduction, convection, and radiation, are treated in depth with the emphasis on fundamentals, analyses, and practical engineering applications. Several computer codes developed for heat transfer problems will be used to study multimode heat transfer problems. This course is a dual level course, intended basically for mechanical engineering undergraduate students. Credit will not be given for this course to a student who has credit in ME 625, ME 626 or ME 627. Prereq: ME 325, Engineering standing.

**ME 560 ENGINEERING OPTICS.** (3)
Fundamentals of geometrical and physical optics; applications as related to problems in engineering design and research; details of some optical measurement techniques; introduction to lasers and their applications to heat transfer and combustion research; inverse analytical techniques for determining optical properties of small particles from light scattering and extinction measurements. Prereq: Engineering standing.

**ME 563 BASIC COMBUSTION PHENOMENA.** (3)
Simultaneous application of fluid mechanics, heat and mass transfer, chemical kinetics and thermodynamics to combustion. Topics covered include chemical kinetics, chain and thermal explosions, detonation and deflagration, flammability limits, stirred reactors. Flame stabilization in high and low velocity streams, laminar and turbulent diffusion flames, droplet burning, and metal combustion. Prereq: ME 330 and Engineering standing; prereq or concur: ME 325.

**ME 564 PROPULSION SYSTEM DESIGN.** (3)
Design of systems for aircraft or missile propulsion. Centrifugal compressors, axial-flow compressors, turbine and exhaust systems, and combustion chambers. Lecture, two hours; laboratory, two hours. Prereq: ME 530 and Engineering standing.

**ME 566 DIRECT ENERGY CONVERSION PROCESSES.** (3)
Basic consideration of direct conversion of thermal and chemical energy to electrical energy. Analysis and design of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic and electrochemical systems. Prereq: ME 325 and Engineering standing.

**ME 583 BIOTECHNOLOGY.** (3)
The human body as a mechanical system responding to sustained and transient forces and pressures, such as occur in flight, space flight and industrial environments. The physical and behavioral reaction of organisms to dynamic, thermal, radiative and gravitational stresses. Mechanical, hydraulic and pneumatic performance of body subsystems. Use of the human parameters in the design of protective and prosthetic devices and life support systems. Prereq: Engineering standing and consent of instructor.

**ME 590 ELEMENTS OF AEROSPACE TECHNOLOGY.** (3)
Flight performance of airborne and ballistic vehicles. Space vehicle propulsion and structures. The space environment. Man in space. Prereq: ME 321 and 330, Engineering standing.

**ME 599 TOPICS IN MECHANICAL ENGINEERING (Subtitle required).** (3)
A detailed investigation of a topic of current significance in mechanical engineering such as: computer-aided manufacturing, special topics in robotics, and current topics in heat transfer. May be repeated under different subtitles to a maximum of nine credits. A particular topic may be offered at most twice under the ME 599 number. Prereq: Variable; given when topic is identified.

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

**ME 601 ADVANCED CAE APPLICATIONS.** (3)
This course will include development of theory for application to several topics in advanced engineering applications of computers in design. Typical topics include rolling element bearings, fluid film bearings, rotor dynamics, and elasto-plastic analysis. When appropriate, specialized computer programs will be introduced and utilized to illustrate the application of theory and numerical techniques in the areas covered. Prereq: ME 501.

**ME 602 DYNAMICS OF DISTRIBUTED MECHANICAL SYSTEMS.** (3)
Applications of small-oscillation shell theory to continuous mechanical systems modeled by shells, plates, rings, arches, membranes, beams, etc. Study of natural frequencies, modeshapes, forced-vibration characteristics, system dampings, dynamic influence function, combination of subsystems, active and passive vibration controls and dampings. Prereq: ME 540 or EM 513, or consent of instructor.

**ME 604 DYNAMICS OF ROTATING MACHINERY.** (3)
Review of dynamic characteristics unique to high speed rotating shafts. Equations of motion for a rotor, including gyroscopic effects. Computational methods, including finite element. Effects of bearings and nonlinearities, stability. Application to design situations. Prereq: EM 313 and ME 501.

**ME 606 SEMINAR AND PROJECT IN MANUFACTURING SYSTEMS ENGINEERING.** (3)
A project course for manufacturing systems. Course consists of seminar presentations by outside professionals and faculty and a course project on a realistic manufacturing systems assignment. Lecture, two hours; laboratory, two hours. (Same as EE/MFS 606.)

***ME 607 ANALYSIS OF METAL CUTTING PROCESSES.** (3)
Advanced study of metal cutting involving the mechanics of metal cutting including cutting forces, tool-wear/tool-life and temperature analysis, surface finish and integrity, chip control, machinability assessments and advances in cutting tool technology. Prereq: ME 505. (Same as MFS/MSE 607).

**ME 608 NONTRADITIONAL MANUFACTURING PROCESSES.** (3)
This course introduces students to fundamentals of nontraditional manufacturing processes. Theory and implementation of the nontraditional manufacturing processes, such as laser cutting and welding, electro discharge machining, abrasive waterjet machining, rapid prototyping, etc., will be addressed. Prereq: ME 505 or consent of instructor. (Same as MFS 608.)

**ME 610 ENGINEERING ACOUSTICS.** (3)
A comprehensive study of wave propagation in fluids; derivation of the scalar wave equation and a study of its elementary solutions for time harmonic and transient waves in one, two and three dimensions. Radiation and scattering of waves at fluid and solid boundaries. Integral equation solution of the scalar velocity wave potential; numerical methods. Prereq or concur: MA 432G.

**ME 611 BOUNDARY ELEMENT METHODS IN ENGINEERING.** (3)
Introduction of boundary element methods for use in solving common engineering equations, such as the Laplace equation, the Poisson equation, the wave equation, and the diffusion equation. Both the theoretical and numerical aspects of the boundary element technique are presented. Application areas include heat conduction, potential flow problems, acoustic wave propagation, general diffusion, and stress analysis. Prereq: EGR 537 or consent of instructor. (Same as EGR 611.)

**ME 620 ADVANCED ENGINEERING THERMODYNAMICS I.** (3)
Critical treatment of the laws of thermodynamics, relations among thermodynamic properties; stability of systems; thermodynamic processes; selected special topics. Prereq: ME 321.

**ME 625 ADVANCED HEAT CONDUCTION.** (3)
Comprehensive study of heat conduction, derivation of governing equations; discussion of the various boundary conditions; review of classical heat conduction solutions; discussion of current problems, methods of solution and engineering applications of heat conduction. Prereq or concur: MA 432G.

**ME 626 ADVANCED HEAT CONVECTION.** (3)
Comprehensive study of heat convection; derivation of equations of convection of mass, momentum, and energy; boundary layer equations; classical solutions of laminar convection problems; turbulent convection; analogies between momentum and energy. Prereq: ME 325, MA 432G or concurrent.

**ME 627 RADIATION HEAT TRANSFER.** (3)
Principles of thermal radiation, the determination of radiation properties, and the analysis of radiation heat transfer. Results of recent radiation researches are included in the discussions. Prereq: ME 325, MA 432G or concurrent.

**ME 628 BOILING AND CONDENSATION.** (3)
Phase-change heat transfer including boiling and condensation. Phenomenological treatment of boiling using hydrodynamic instability. Theory of two-phase flow and its application to forced flow boiling. Film and dropwise condensation. Prereq: ME 325.

**ME 631 FLUID DYNAMICS II.** (3)
A continuation of ME 531 with emphasis on viscous flow. Exact and approximate solutions, boundary layer theory. Jets, wakes, rotating systems, compressible boundary layer and hydrodynamic stability. Prereq: ME 531 or consent of instructor.

**ME 634 TURBULENT FLOWS.** (3)
Physical and analytical description of turbulent flows, isotropic turbulence, boundary layers and shear flows, free turbulence in jets and wakes. Measurement techniques. Prereq: ME 529 or ME 531.

**ME 640 ADVANCED ANALYSIS AND SIMULATION OF DYNAMIC SYSTEMS.** (3)
An extension of ME 540 emphasizing advanced techniques. The concept of random processes in mechanical engineering problems; nonparametric and parametric models. The use of correlation, spectral analysis and digital filtering in data analysis and model building. Prereq: ME 540.

**ME 647 SYSTEM OPTIMIZATION I.** (3)
A course in the theory and application of optimization techniques with emphasis on large engineering systems. Prereq: CS 221, one mathematics course beyond MA 214.

**ME 690 ADVANCED ALGORITHMS FOR COMPUTATIONAL FLUID DYNAMICS.** (4)
Theory and implementation of main algorithms widely used for solving multi-dimensional partial differential equations arising in engineering applications such as fluid dynamics, heat and mass transfer, semiconductor simulation, etc. Numerical solution of steady and time-dependent linear partial differential equations on rectangular domains via finite difference techniques. Linearization methods for treatment of nonlinear problems. Numerical grid generation for transforming irregular domains into rectangular computational grids. Prereq: MA 537, or consent of instructor, and competence with a high-level programming language.

**ME 699 TOPICS IN MECHANICAL ENGINEERING (Subtitle required).** (3)
A detailed investigation of a topic of current significance in mechanical engineering. May be repeated to a maximum of nine credits under different subtitles. A particular topic may be offered at most twice under the ME 699 number. Prereq: Variable; given when topic is identified.

**ME 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ME 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ME 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**ME 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**ME 780 SPECIAL PROBLEMS IN MECHANICAL ENGINEERING.** (3)
This course consists of individual work in one of the various fields of mechanical engineering. May be repeated three times for a maximum of 12 credits. Prereq: Approval of instructor.

**ME 783 TOPICS IN ADVANCED SYSTEMS THEORY.** (3)
A survey and evaluation of current research results in systems theory. A course designed to permit full utilization of specialized abilities of individual and visiting faculty. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**ME 790 RESEARCH IN MECHANICAL ENGINEERING.** (1-9)
Work may be taken in any field of mechanical engineering, subject to the approval of the director of graduate st[illegible]s. May be used to satisfy prequalifying examination residency credit. May be repeated to a maximum of 18 hours.

## MFS Manufacturing Systems Engineering

**MFS 505 MODELING OF MANUFACTURING PROCESSES AND MACHINES.** (3)
A study of the major manufacturing processes and equipment. Emphasis on mathematical and computer models of these processes, as used in automated manufacturing and control of these processes. Lecture, two hours; laboratory, two hours. Prereq: EM 313 and EM 302. (Same as ME 505.)

**#MFS 507 DESIGN FOR MANUFACTURING.** (3)
The topics will include fundamentals of concurrent engineering, product life cycle, product specification, standardization, functional requirements and datum features, selection of materials and manufacturing processes, cost analysis, case studies on designing for quality, economy, manufacturability and productivity. Prereq: ME 344 and engineering standing. (Same as ME 507.)

**#MFS 512 MANUFACTURING SYSTEMS.** (3)
This course introduces students to fundamentals of design, planning and control of manufacturing systems aided by computers. Concepts of control hardware, NC programming languages, software aspects related to NC manufacturing, programmable controllers, performance modeling of automated manufacturing systems, group technology and flexible manufacturing systems, etc. will be addressed. Prereq: Engineering standing. (Same as ME 512.)

**MFS 605 SYSTEMS FOR FACTORY INFORMATION AND CONTROL.** (3)
Systems approach to manufacturing. Hardware and software for real time control and reporting. Sensor and actuators, controllers, networks, databases, hierarchical and distributed control, CAD/CAM systems, flexible manufacturing systems, group technology, modeling and simulation of factory operations. Lecture, two hours; laboratory, two hours. Prereq: MFS 505. (Same as EE 605.)

**MFS 606 SEMINAR AND PROJECT IN MANUFACTURING SYSTEMS ENGINEERING.** (3)
A project course for manufacturing systems. Course consists of seminar presentations by outside professionals and faculty and a course project on a realistic manufacturing systems assignment. Lecture, two hours; laboratory, two hours. (Same as EE/ME 606.)

***MFS 607 ANALYSIS OF METAL CUTTING PROCESSES.** (3)
Advanced study of metal cutting involving the mechanics of metal cutting including cutting forces, tool-wear/tool-life and temperature analysis, surface finish and integrity, chip control, machinability assessments and advances in cutting tool technology. Prereq: ME 505. (Same as ME/MSE 607).

**MFS 608 NONTRADITIONAL MANUFACTURING PROCESSES.** (3)
This course introduces students to fundamentals of nontraditional manufacturing processes. Theory and implementation of the nontraditional manufacturing processes, such as laser cutting and welding, electro discharge machining, abrasive waterjet machining, rapid prototyping, etc., will be addressed. Prereq: ME 505 or consent of instructor. (Same as ME 608.)

**MFS 611 ORGANIZATIONAL BEHAVIOR.** (3)
A critical examination of behavior and performance within organizations and between organizations. Special attention is paid to the problem of performance at the individual, group, and formal organizational level. Prereq: Graduate School standing. (Same as MGT 611.)

**MFS 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**MFS 780 SPECIAL PROBLEMS IN MANUFACTURING SYSTEMS ENGINEERING.** (3)
Course consists of specialized individual work in manufacturing systems engineering. Laboratory, nine hours. May be repeated to a maximum of nine credits. Prereq: Approval of instructor.

## MGT Management

**MGT 301 BUSINESS MANAGEMENT.** (3)
A study of planning, organizing and controlling; an interdisciplinary approach; actual decision-making cases. Prereq: STA 291, ECO 201, 202 and ACC 202, or consent of instructor.

**MGT 320 SURVEY OF PERSONNEL AND INDUSTRIAL RELATIONS.** (3)
Survey of the field of personnel and industrial relations. Introduction of the topics of manpower planning, selection, placement, training, compensation, administration, labor-management relationships, hours of work, and health and safety. Prereq: MGT 301 or consent of instructor.

**MGT 340 ETHICAL AND REGULATORY ENVIRONMENT.** (3)
This course focuses on ethical principles, the nature of the capitalist-collectivist continuum, government influence on business, and the responsibility of business to society. Topics to be considered include major approaches to ethical reasoning, antitrust law, social regulation, and the economic and social theories that undergird the concept of the social responsibility of business. Prereq: Junior standing or consent of instructor.

**MGT 341 BUSINESS LAW I.** (3)
An introduction to the United States legal system and its application to the business community. Topics to be considered include: contracts, agency, commercial paper, and real property. Prereq: Junior standing or consent of instructor.

**MGT 395 INDEPENDENT STUDY IN MANAGEMENT.** (1-6)
Course designed to accommodate students' independent exploration of specific topics within management. Course must be under the supervision of an instructor. May be repeated to a maximum of six credits. Prereq: GPA of 3.0, upper division status, approval of instructor and chairperson.

**MGT 408G WORLD BUSINESS.** (3)
Examines the impact of international business upon society from a political, cultural, and economic point of view. Particular stress will be given to U.S. business in international operations; its past involvement, present position, and future direction. Prereq: ECO 201, 202.

**MGT 410 ANALYSIS OF ORGANIZATIONAL BEHAVIOR.** (3)
The behavior of business organizations and their participants is analyzed in the contemporary language of social psychology, systems, and models. Various theories of the firm are reviewed and evaluated. The interdependence of economic, social and behavioral factors is stressed. Prereq: MGT 301 or consent of instructor.

**MGT 422 WAGE AND SALARY ADMINISTRATION.** (3)
Analysis of theory and practice in the administration of compensation. Practices and issues related to establishing a position structure, determining rates of pay, making individual pay decisions, administering benefits, and controlling compensation. Prereq: MGT 320.

**MGT 423 MANAGING EMPLOYEE RELATIONS.** (3)
Analysis of theory and practices in managing relationships with employees. The emphasis is on organizational conflict, employee commitment, and problems in union and nonunion situations from a managerial perspective. Prereq: MGT 320, MGT 410, ECO 481G or consent of instructor.

**MGT 430 SERVICES MARKETING MANAGEMENT.** (3)
This course addresses marketing and management issues and problems faced by service organizations. Marketing and management concepts are broadened and applied to the service organizations. Topics related to service quality, the marketing mix, and service delivery are covered. Prereq: MKT 300, MGT 301. (Same as MKT 430.)

**MGT 441 BUSINESS LAW II.** (3)
A survey of selected business law topics to include: corporations, partnerships, secured transactions, sales, and bankruptcy. Prereq: MGT 340 or 341, or consent of instructor.

**MGT 450 DECISION ANALYSIS.** (3)
The purpose of this course is to provide students with methodologies of problem solving by developing (a) their analytical maturity, (b) their ability to identify problem-generated alternative actions, and (c) their ability to choose among alternative courses of actions. Prereq: Senior standing in College of Business and Economics and DIS 300. (Same as DIS 450.)

**MGT 491 SMALL BUSINESS MANAGEMENT.** (3)
An examination of the problems and decisions inherent in the establishment, financing, and management of small business firms. An experiential exercise, involving a consulting assignment to an operating small business in the area, is a central component of the course. Not to be taken on a pass-fail basis. Prereq: MKT 300, MGT 301, MGT 340, FIN 300 or consent of instructor.

**MGT 492 ENTREPRENEURSHIP AND VENTURE CREATION.** (3)
An examination of the role of the entrepreneur in society and analysis of the considerations inherent in starting a business. Topics include market and financial feasibility analysis, selection of a legal form of organization, estimating resource requirements, and site selection. Prereq: Senior standing and MKT 300, MGT 301, MGT 340 or MGT 341 and FIN 300.

**MGT 499 STRATEGIC MANAGEMENT.** (3)
Formulation and evaluation of strategy for single business and multiple business companies. Prereq: MKT 300, MGT 301, MGT 340, FIN 300 and senior standing.

**MGT 608 COMPARATIVE INTERNATIONAL MANAGEMENT.** (3)
A comparison of management concepts and practices in different countries and the role of management in economic development; an interdisciplinary approach emphasizing the impact of sociological-cultural factors, legal-political factors and education on management development. Prereq: MGT 301 or consent of instructor.

**MGT 611 ORGANIZATIONAL BEHAVIOR.** (3)
A critical examination of behavior and performance within organizations and between organizations. Special attention is paid to the problem of performance at the individual, group, and formal organizational level. Prereq: Graduate School standing. (Same as MFS 611.)

**MGT 620 PERSONNEL AND INDUSTRIAL RELATIONS.** (3)
Critical examination of theory, research, and managerial practice in the management of human resources. Particular attention is paid to the processes of human resource planning, staffing, compensation, and the management of employee relations. Prereq: MGT 611, ECO 610, ACC 628, MGT 650, MKT 600, ECO 611, FIN 600, MGT 651.

**#MGT 624 MANAGEMENT OF INFORMATION RESOURCES.** (3)
The course is designed to prepare students to understand and analyze major issues related to the management of information resources, evaluate the current state of information resources management within an organization, and participate in the management of such resources. Prereq: DIS 620 or consent of instructor. (Same as DIS 624.)

**MGT 640 LEGAL AND REGULATORY ENVIRONMENT.** (3)
The purposes of this course are: 1) to establish an introductory understanding of the nature, dimensions, and impact of government regulation of business, 2) to explore, in summary fashion, the rudiments of the capitalist-collectivist continuum, 3) to alert the student to ethical dilemmas in the decision process, and 4) to exercise the student's skills in analysis, writing, and speaking. Prereq: Graduate standing; MGT 611, ECO 610, ACC 628, MGT 650, MKT 600, ECO 611, FIN 600, MGT 651.

**MGT 695 INDIVIDUAL WORK IN MANAGEMENT.** (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

**MGT 697 TOP MANAGEMENT LEADERSHIP IN THE CONTEMPORARY BUSINESS ENVIRONMENT.** (3)
Political, historical, and philosophical perspectives on the meaning and processes of top management leadership. Applications of leadership perspective to the development of organizational culture, ethics and values, stakeholder relations, business-government relations, and competitiveness. Prereq: Third semester MBA standing.

**MGT 699 BUSINESS POLICY AND STRATEGY II.** (3)
Strategic issues associated with multi-industry, multi-national, multi-business and start-up management; strategy implementation and institutionalization; planning systems. Prereq: MGT 698 or the equivalent.

**MGT 700 ADMINISTRATIVE SCIENCE.** (3)
Primary emphasis upon the identification and investigation of the schools of thought concerning the field of administration. Analysis of various theory bases for purposes of integration and generalization will also make up a major portion of the course. Prereq: MGT 301 or consent of instructor.

**MGT 711 ORGANIZATIONS AND EXTERNAL SYSTEMS.** (3)
Systems analysis is used to examine organizations from two perspectives: (1) intra-organizational linkages among goals, technical subsystems and structural subsystems, and (2) organizational linkages with institutions, parties and cultures in its environment. Prereq: Consent of instructor.

**MGT 712 ORGANIZATIONS AND INDIVIDUAL BEHAVIOR.** (3)
Examination of current theory and empirical research regarding the behavior of individuals within organizations. Topics are divided into three phases: major behavioral processes, applied models of individual choice behavior, and specific areas of individual choice and decision.

**MGT 713 SEMINAR IN ADVANCED ORGANIZATION THEORY.** (3)
Seminar will examine broad range of organization theory and research from a multiple paradigm perspective. Interpretive and critique views and research literature will be among those examined. Prereq: MGT 700 and MGT 711, or equivalent and consent of instructor.

**MGT 714 SEMINAR IN MANAGEMENT THEORY AND POLICY.** (3)
A broad range of literature on organization strategy and structure is examined. Conceptual frameworks and research relating to the Business Policy decision processes are reviewed and critiqued. Prereq: Permission of instructor.

**MGT 780 SPECIAL TOPICS IN MANAGEMENT (Subtitle Required).** (3)
Analysis of a specialized topic in management. May be repeated to a maximum of 12 credits when taken under different subtitles. Prereq: Consent of instructor.

**MGT 781 INDEPENDENT WORK IN MANAGEMENT.** (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a total of six credit hours. Prereq: Consent of instructor.

## MKT Marketing

**MKT 300 MARKETING MANAGEMENT.** (3)
The literature and problems in the retail distribution of consumers' goods, wholesale distribution of consumers' goods, industrial goods, sales organizations, sales promotion and advertising, and price policies. Prereq: ECO 202 or consent of instructor.

**MKT 310 BEHAVIORAL SYSTEMS IN MARKETING.** (3)
The application of psychology, sociology, and anthropology to marketing. Includes such topics as consumer decision process, communications, interpersonal behavior, innovation. Prereq: MKT 300.

**MKT 320 RETAIL AND DISTRIBUTION MANAGEMENT.** (3)
Analysis of the functions, structure, policies, and performance of distribution channels and institutions. The course objective is to provide students with an understanding of concepts and decision making tools useful in managing manufacturer-retailer relationships and distribution costs at both the channel and retail level. The course is also concerned with the legal and socio-economic impact of distribution trends and practices. Prereq: MKT 300.

**MKT 340 INTRODUCTORY MARKETING RESEARCH.** (3)
Managerial applications of research in marketing decision making. The course objective is to provide students with expertise in defining information needs, selecting information sources and organizing information in decision-making contexts. Application of major concepts will be illustrated in marketing policy areas. Prereq: MKT 300, ECO 391.

**MKT 390 SPECIAL TOPICS IN MARKETING (Subtitle required).** (1-3)
Readings, projects, lecture and/or discussion to illuminate current topics of special interest or concern in marketing. May be repeated to a maximum of six credits. May not be repeated under the same title. A particular topic may be offered at most twice under the MKT 390 number. Prereq: Consent of instructor.

**MKT 395 INDIVIDUAL WORK IN MARKETING.** (1-6)
Student develops a specific program with instructor. One or more papers is typically expected. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

**MKT 400 PROMOTION MANAGEMENT.** (3)
The objectives of the Promotion Management course are to develop awareness and understanding of the role and functions of promotion within firms and within society and to explicitly attempt to develop student thinking skills, i.e., problem identification, problem analysis, and problem solving, in the area of promotion. Prereq: MKT 300 and MKT 310 or permission of instructor.

**MKT 410 PERSONAL SELLING AND SALES MANAGEMENT.** (3)
A detailed exposure to personal selling techniques. Emphasis placed on sales process, especially planning and delivery of sales presentations. Selected sales management topics include recruiting, training, motivating and evaluating sales people, as well as ethical and legal issues. Prereq: MKT 300 and marketing majors only.

**MKT 420 CONTEMPORARY MARKETING PROBLEMS.** (3)
An examination of selected areas in the field of marketing with a focus on contemporary problems. Emphasis will be placed on individual work by students. Prereq: MKT 300 and senior standing.

**MKT 430 SERVICES MARKETING MANAGEMENT.** (3)
This course addresses marketing and management issues and problems faced by service organizations. Marketing and management concepts are broadened and applied to the service organizations. Topics related to service quality, the marketing mix, and service delivery are covered. Prereq: MKT 300, MGT 301. (Same as MGT 430.)

**MKT 435 INTERNATIONAL MARKETING.** (3)
The primary objectives of this course are to: 1) familiarize the student with selected strategic marketing issues in a multinational environment, 2) examine alternative ways by which a firm can expand internationally, and 3) help the student develop a systematic approach for dealing with global and international marketing issues. Prereq: MKT 300.

**MKT 440 ADVANCED MARKETING RESEARCH.** (3)
Training in the application of scientific method and analytical techniques in the fields of marketing. Emphasis on the analysis of empirical data. Prereq: MKT 300, MKT 340, ECO 391.

**MKT 450 MARKETING STRATEGY AND PLANNING.** (3)
An examination of and participation in analytical processes for managerial marketing decisions. Topics will include such problem areas as product planning, distribution systems, advertising strategies, information systems, pricing decisions and buying behavior. Prereq: MKT 300 and two other marketing courses.

**MKT 600 MARKETING MANAGEMENT.** (3)
This course is designed to provide students with an understanding of: the role of marketing function in an organization; the types of marketing decisions and analytical procedures involved in making each decision; the overall marketing planning process; and, the impact of the social, economic, and legal environment on marketing decisions. Prereq: Completion of first semester of MBA program, graduate standing, MGT 611, ECO 610, ACC 628, MGT 650.

**MKT 601 MARKETING RESEARCH.** (3)
MKT 601 entails a vigorous examination of research methodology applicable to marketing situations. Emphasis is placed on 1) experimental design, 2) survey design and administration, and 3) analytical procedures. Practical application of marketing research is stressed. Legal and social issues are also examined. Prereq: MKT 600, MGT 650, and MGT 651.

**MKT 621 PRODUCT MANAGEMENT.** (3)
Examines the analytical, decision making, and planning concepts and tools available to market/product/brand managers. Specific decisions to be addressed include: product policy formulation, the selection of product market strategies, new product development, product-line modifications and deletions, and organizational implications. Prereq: Completion of first year of MBA program or permission of instructor.

**MKT 622 SALES MANAGEMENT.** (3)
MKT 622 entails a comprehensive examination of the planning, implementing, and control of personal contact programs designed to achieve the sales objectives of the firm. Managerial decision-making is emphasized through the application of lecture material, readings, and case studies. Prereq: Completion of first year of MBA program or permission of instructor.

**MKT 623 MARKETING IN SERVICE AND NONPROFIT ORGANIZATIONS.** (3)
The purpose of the course is to broaden and apply the conceptual system of marketing to the marketing problems of service and nonprofit organizations. Concepts such as marketing mix, marketing segmentation, market positioning, channels of distribution and others will be applied to the problems of service and nonprofit organizations. Prereq: MKT 600 or permission of the instructor.

**MKT 624 INTERNATIONAL MARKETING MANAGEMENT.** (3)
Examines the broad implications for marketing strategy and decision making of the firm in an international context. Addresses comprehensive survey of firm entry strategies, marketing mix decisions, product policies, and environmental factors in a global context. Context-based problems such as implicit barriers to entry through distribution channel management will also be addressed. Prereq: MKT 600 or permission of instructor.

**MKT 695 INDIVIDUAL WORK IN MARKETING.** (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**MKT 700 SEMINAR IN MARKETING MANAGEMENT.** (3)
A doctoral seminar directed toward the basic decision areas of marketing management. Emphasis is on traditional, classic, and contemporary literature that presents important conceptualizations of marketing practices and empirical research in marketing management. Prereq: Consent of instructor.

**MKT 710 SEMINAR IN CONSUMER BEHAVIOR.** (3)
The seminar is specifically designed for the needs of doctoral students in marketing in that it emphasizes empirical research, theory and methodology as they relate to consumer behavior. The objectives of the seminar are (1) to familiarize the students with the literature of consumer behavior, (2) to stimulate critical thinking about existing research, and (3) to evaluate existing theories, conceptualizations, and models of buyer behavior. Prereq: Consent of instructor.

**MKT 720 SEMINAR IN MARKETING THEORY.** (3)
A survey, analysis and evaluation of the current research in marketing theory. Detailed attention is given to problems of determining the meaning and boundaries of marketing theory. Emphasis is placed on introducing the student to the substantive content of marketing theories and their methodologies. Prereq: MKT 600 or consent of instructor.

**MKT 771 SEMINAR IN BUSINESS ADMINISTRATION.** (3)
Each semester some topic currently discussed in scholarly journals in business administration will be studied intensively. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**MKT 781 INDEPENDENT WORK IN MARKETING.** (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

## MNG Mining Engineering

**MNG 101 INTRODUCTION TO MINING ENGINEERING.** (1)
Orientation to the mining engineering profession.

**MNG 102 ELEMENTS OF MINING ENGINEERING.** (2)
Introduction to key mining engineering activities and functions; principles of mine planning and design, mining methods and equipment, and health and safety subsystems. Prereq: MNG 101.

**MNG 211 SURVEYING.** (4)
A comprehensive course in the art and science of surveying as applied to civil and mining engineering, including the use and care of surveying instruments; measurement of horizontal and vertical distances, angles and directions; collection of ground and underground data for the design and layout of roads, buildings, various mineral workings and other structures; and some aspects of the precise determination of position and direction for survey control. Lecture, three hours; laboratory, three hours per week. Prereq: CE 106, CE 121 or MNG 102, MA 114. (Same as CE 211.)

**MNG 222 MINE LAW AND SAFETY.** (3)
Mine laws, including safety regulations and interpretations for engineers and supervisors. Prereq: MNG 102.

**MNG 301 MINERALS PROCESSING.** (3)
Petrographic structure of ore and coal deposits, sampling theory, and particle motion in fluid streams. Unit operations for processing particulate materials; breaking, screening, laundering, froth flotation and clarification. Flowsheets, process selection and plant performance. Prereq: PHY 232.

**MNG 302 MINERALS PROCESSING LABORATORY.** (1)
Application of the principles studied in MNG 301. Laboratory, two hours. Prereq or concur: MNG 301.

**MNG 312 COMPUTER METHODS IN MINING ENGINEERING.** (3)
Use of microprocessors for data acquisition, process control, planar digitizing and plotting. Remote accessing of standard libraries of mining engineering and statistical packages. Modeling of mine systems. Prereq: CS 221.

**MNG 332 MINE PLANT MACHINERY.** (3)
Theory and practice of mine haulage, hoisting, drainage, pumping and compressed air as power. Application of engineering principles to the mineral industries. Prereq: MNG 101 and 102, PHY 231. Concur: EM 221.

**MNG 341 MINE VENTILATION.** (3)
Hazards of dust and gaseous contamination of mine atmosphere, air dilution requirements, flow distribution in mine network, computer analysis of the ventilation network, natural ventilation and fans. Lecture, two hours; laboratory, three hours. Prereq: PHY 231, CE 341 and engineering standing.

**MNG 371 SEMINAR.** (1)
Oral presentation of a student-developed technical paper appropriate to mining engineering. Review of speaking skills, organization and time management abilities, and use of audio-visual aids. Lecture, two hours per week. Prereq: Engineering Standing.

**MNG 395 INDEPENDENT WORK IN MINING ENGINEERING.** (1-6)
Individual work on some selected problem in the field of mining engineering. May be repeated for a maximum of six credits. Prereq: Consent of department chairperson and the instructor.

**MNG 431 MINE SYSTEMS ENGINEERING.** (3)
Aspects of industrial and geological engineering for mine systems engineering design. Course consists of reserve engineering, presystems modeling and interfacing systems to reserves. Prereq: STA 381, MNG 332.

**MNG 463 SURFACE MINING OPERATIONS.** (3)
Optimization of open pit geometry. Classification of surface mining methods. Surface mining development for metalliferous ore bodies and coal deposits. Drilling, blasting, ground excavation and loading. Mineral transport systems. Maintenance scheduling. Prereq: MNG 332, Engineering Standing.

**MNG 464 UNDERGROUND MINING OPERATIONS.** (3)
An in-depth study of the principal mining methods practiced in coal and hard rock mines. Classification of hard rock mining systems. Mining techniques of room and pillar, longwall and shortwall in coal mines. Support and equipment requirements. Production features and design of haulage systems. General mine planning and developments. Engineering and management considerations. Prereq: MNG 332.

**MNG 490G EXPLOSIVES AND BLASTING ENGINEERING.** (3)
Types of commercial explosives, explosive properties; systems of initiation, charging methods, design of benches, design of blasting rounds; explosives applications in mining and other fields; damage control; and safe blasting practices. Prereq: Engineering standing or consent of instructor.

**MNG 551 ROCK MECHANICS.** (4)
Determination of the physical properties of rocks, rock mass classification, stress around mine openings, strain and displacement of the rock mass, rock reinforcement and support, stress interaction and subsidence, strata control. Lecture, three hours; laboratory, three hours per week. Prereq: EM 302, EM 303, GLY 240 and Engineering standing; or consent of instructor.

**MNG 561 MINE CONSTRUCTION ENGINEERING I.** (3)
Development of underground capital openings (shafts, chambers, tunnels, and drifts) in mines. Design and construction under normal conditions. Organization and management of construction operations. Prereq: MNG 551.

**MNG 563 SIMULATION OF MINE PRODUCTION SYSTEMS.** (3)
Discrete event simulation and its application to performance analysis of mine production systems. Topics include concepts for characterizing production systems, approaches to structuring simulation models, instruction in a simulation language, and techniques for comparing alternative system designs and control strategies. Applications are made in modeling mine face operations, conveyor networks, and discrete vehicle transport systems. Prereq: CS 221, STA 381 and MNG 431. (Same as OR 563.)

**MNG 572 ADVANCED COAL PREPARATION.** (3)
Study of economic and environmental factors in cleaning a specific coal, laboratory tests for process selection, laboratory testing of alternative procedures leading to design of plant. Lecture, two hours; laboratory, three hours per week. Prereq: MNG 301 and Engineering standing.

**MNG 575 COAL PREPARATION DESIGN.** (3)
Design a coal preparation plant by integrating unit operations preceded by certain back-up laboratory experiments. Cost sensitivity analysis of competing design schemes will be determined on a selected coal. Lecture: two hours; laboratory: three hours per week. Prereq: MNG 301 or equivalent.

**MNG 581 MINE VALUATION AND GEOSTATISTICS.** (3)
Geostatistics-based ore reserve estimation and engineering economics applied to estimation of the economic value of a mineral property. Topics include treatment of the spatial distributions of ore grade as regionalized variables, covariance stationary processes, variograms, volume/variance relations, ordinary kriging, block selection decisions under uncertainty, cash flow analysis, capital costing techniques, mineral pricing, and risk assessment. Prereq: STA 381.

**MNG 591 MINE DESIGN PROJECT I.** (1)
Students will undertake a design project consisting of reserve analysis on a given mine property. They will calculate minable reserves and analyze mining and quality properties of coal. Each student will write a report supported by maps and will present it orally before a group of peers and invited experts. Lecture, one hour; laboratory, one hour per week. Prereq: MNG 332.

**MNG 592 MINE DESIGN PROJECT II.** (2)
Each student will undertake one or more major design projects such as the overall design of a mining system, including design of major components of the system and an economic evaluation. Each student will write one or more individual reports, which will also be presented orally before a group of peers and invited experts. Lecture, one hour; laboratory, two hours per week. Prereq: MNG 341, MNG 551, MNG 591.

**MNG 599 TOPIC IN MINING ENGINEERING.** (2-3)
A detailed investigation of a topic of current significance in mining engineering. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the MNG 599 number. Prereq: Engineering standing and consent of instructor.

**MNG 632 MINE PLANT MACHINERY II.** (3)
Analysis of major bulk handling media, including rail haulage, conveyor belt haulage, hoisting, and off-highway trucks. Use of available computer software for evaluation, selection, and design of haulage equipment by mathematical modeling and simulation. Encumbered space in mining, velocity-clearance curves, and optimal sizing of mobile handlers. Prereq: MNG 592 or consent of instructor.

**MNG 634 ADVANCED MINE ENGINEERING.** (3)
Procedures and methods of obtaining data and analyzing mine systems for efficient development and exploitation of a mining property. Course includes applications of operation research techniques. Prereq: CE 555, CS/MA/STA 482G.

**MNG 637 ROCK SLOPE STABILITY AND DESIGN.** (3)
Design and stability analysis of rock slopes using analytical, empirical, and numerical approaches, engineering geological data, groundwater pressure, blasting, and remedial measures. Prereq: MNG 551.

**MNG 641 ADVANCED MINE VENTILATION.** (3)
Planning, designing and redesigning the ventilation systems using computers; data acquisition (ventilation survey); non-steady state flow in mine openings; influence of the ventilation conditions upon the dynamics of the methane concentration; automation of the ventilation system. Lecture, two hours; laboratory, two hours. Prereq: MNG 341.

**MNG 661 MINE CONSTRUCTION ENGINEERING II.** (3)
Advanced analysis of underground capital openings in mines with emphasis on linings. Design under adverse geological conditions and unusual technological requirements. Special and unique construction methods and equipment. Prereq: MNG 561.

**MNG 681 GEOSTATISTICS II.** (3)
A second course in geostatistics for mine planning and geotechnical applications. Topics include co-regionalized variables and cokriging, non-parametric geostatistics (indicator, probability, and soft kriging), loss functions and optimum predictors for ore selection decisions, conditional simulation—techniques and applications. Prereq: MNG 581.

**MNG 690 ADVANCED MINERAL BENEFICIATION ENGINEERING.** (3)
State of the art techniques in mineral beneficiation and their application in coal and mineral preparation industry. Prereq: MNG 301 and MNG 572.

**MNG 691 SIMULATION OF MINERAL PROCESSING CIRCUITS.** (3)
Flowsheet modeling and analysis for coal preparation and ore dressing plants. Topics include unit models for comminution, gravity separation, and froth flotation; relevant techniques for solving systems of nonlinear equations; convergence acceleration techniques; sequential modular, simultaneous modular, and equation-solving flowsheeting frameworks; flowgraph techniques for analysis of certain classes of mineral processing circuits. Prereq: MNG 575.

**MNG 699 TOPICS IN MINING ENGINEERING (Subtitle Required).** (3)
A detailed investigation of a topic of current interest in mining engineering. May be repeated to a maximum of six credits, but only three credits may be earned under the same subtitle. A particular topic may be offered only twice under the MNG 699 number. Prereq: Consent of instructor.

**MNG 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**MNG 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**MNG 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**MNG 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE.** (0-12)
May be repeated indefihitely.

**MNG 771 SEMINAR IN MINING ENGINEERING.** (1)
Review of current research in specific areas of mining engineering. Required of all graduate students. Prereq: Graduate classification.

**MNG 780 SPECIAL PROBLEMS IN MINING ENGINEERING.** (1-6)
Individual work on some selected design problems in one area of mining engineering. May be repeated to a maximum of six credits. Prereq: Approval of the chairperson of the department.

**MNG 790 SPECIAL RESEARCH PROBLEMS IN MINING ENGINEERING.** (1-9)
Individual work on some selected problems in one of the various fields of mining engineering. Laboratory and field measurements, six hours. May be repeated to a maximum of nine credits. Prereq: Approval of the Director of Graduate Studies.

## MS Military Science

(ARMY ROTC)

BASIC COURSES

**†MS 101 AMERICAN MILITARY HISTORY I.**

***MS 103 ROLE OF THE U.S. ARMY.** (2)
A course examining the U.S. Army as an institution, specifically looking at the roles and relationships of the Army within our democracy. Course also provides a look at the Army officer and unique aspects of the military profession.

***MS 104 INTRODUCTION TO LEADERSHIP.** (2)
This course is designed to acquaint the student with the fundamental skills necessary to be a leader, both in military and civilian context. Course also covers basic military map reading skills.

***MS 203 AMERICAN MILITARY HISTORY.** (2)
Study of the development of the U.S. from a military perspective. Pre-parallel development of technology and warfare; and emphasis on the evaluation of military leadership from the historically tested principles of warfare from the Civil War to the present.

**#MS 204 EFFECTIVE MILITARY COMMUNICATIONS.** (2)
This course provides instruction and practical experience in the art of speaking and writing in the Army style. Students will demonstrate competency through a series of oral presentations and writing assignments. Small unit tactics and map reading skills will also be used in the implementation of the oral presentations.

ADVANCED COURSES

**MS 301 LEADERSHIP AND MANAGEMENT I.** (3)
Course of study in development of basic skills required to function as a manager; study of leadership styles, group dynamics, communications, motivation and military instruction methods; and school of the soldier and exercise of command. Prereq: MS 201, 202 graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

**MS 302 ADVANCED TACTICS.** (3)
Small unit tactics and communications, organization and mission of combat arms units; leadership and the exercise of command. Prereq: MS 201, 202, graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

**MS 341 LEADERSHIP AND MANAGEMENT II.** (3)
An advanced study of logistics, operations, military administrations, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

**MS 342 COMMAND MANAGEMENT.** (3)
An advanced study of logistics, operations, military administration, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

**MS 350 MILITARY SCIENCE LABORATORY.** (1)
A hands-on practicum which exposes the student to the military skills required for basic technical and tactical competence as an Army officer. The course affords the student opportunities to develop and refine his/her leadership style and abilities under differing constraints and environments. Laboratory, two hours per week and two week-end exercises. May be repeated to a maximum of four credits. Concur: MS 301, 302, 341, or 342.

**MS 395 INDEPENDENT STUDY IN LEADERSHIP.** (1-2)
Advanced study in leadership. Students are under guidance and confer individually with faculty on approved topic(s). A written report or paper is expected and will be filed in the chairperson's office. May be repeated to a maximum of four credits. Prereq: Completion of MS 302 and approval of PMS.

## MSC Modern Studies Curriculum

***MSC 105 MINI-COLLEGE I: (TWO SUBTITLES REQUIRED).** (1-5)
A course for first semester freshmen enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

***MSC 106 MINI-COLLEGE II: (TWO SUBTITLES REQUIRED).** (1-5)
A course for second semester freshmen enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

***MSC 107 NATURAL SCIENCE I.** (4)
A multidisciplinary course on the scientific view of the origin, nature, and evolution of the universe. The two-semester sequence explores the relationships among astronomy, biology, chemistry, geology, and physics in historical, cultural, and environmental contexts. This course emphasizes aspects of physics, astronomy, and chemistry. Lecture, three hours; laboratory/practicum/field trips, three hours per week. Prereq: Enrollment in a UK mini-college.

***MSC 108 NATURAL SCIENCE II.** (4)
A multidisciplinary course on the scientific view of the origin, nature, and evolution of the universe. The two-semester sequence explores the relationships among astronomy, biology, chemistry, geology, and physics in historical, cultural, and environmental contexts. This course emphasizes aspects of geology and biology. Lecture, three hours; laboratory/practicum/field trips, three hours per week. Prereq: Enrollment in a UK mini-college.

***MSC 205 MINI-COLLEGE IIIA: (TWO SUBTITLES REQUIRED).** (1-5)
A course for sophomores enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

***MSC 206 MINI-COLLEGE IVA: (TWO SUBTITLES REQUIRED).** (1-5)
A course for sophomores enrolling in a mini-college. Students may enroll in up to nine (9) hours of A&S mini-college credit concurrently, as required by the mini-college. Prereq: Enrollment in a designated UK mini-college.

## MSE Materials Science And Engineering

**MSE 101 MATERIALS ENGINEERING.** (1)
An introduction to the materials engineering profession. Professional growth, conduct, ethics and organizations. Introduction to the techniques of materials engineering.

**MSE 102 METALS TECHNOLOGY.** (1)
A laboratory course introducing students to molding, pattern making, casting, cutting, welding and heat treating. Laboratory, three hours per week.

**MSE 201 MATERIALS SCIENCE.** (3)
Microscopic and macroscopic structure as related to the properties of materials with engineering applications. Prereq or concur: MA 114 and freshman chemistry.

**MSE 212 ELECTRONIC PROPERTIES OF MATERIALS.** (3)
Modern ideas on the engineering properties of solids, crystallographic properties; relationship of properties to structure and electronic properties of materials. Prereq: PHY 232 and 242, MA 214 concurrent.

**MSE 361 STRUCTURE AND PROPERTIES OF MATERIALS I.** (4)
The principles of phase diagrams of materials; dependence of physical, mechanical and electrical properties on microstructure of materials. Solidification, deformation and softening processes in materials. Lecture, three hours; laboratory, three hours per week.

**MSE 362 STRUCTURE AND PROPERTIES OF MATERIALS II.** (4)
Diffusion in materials, aging processes; the iron-carbon system, environmental degradation of materials. Lecture, three hours; laboratory, three hours per week. Prereq: MSE 361 and engineering standing.

**MSE 395 INDEPENDENT WORK IN MATERIALS ENGINEERING.** (1-3)
Research for undergraduate departmental students. May be repeated to a maximum of 12 credits. Prereq: Department major and approval of chairperson.

**MSE 421 SOLIDIFICATION AND CASTING.** (4)
Ferrous and nonferrous foundry practice. Application of engineering principles to the design and production of castings. Lecture; three hours; laboratory, three hours. Prereq: MSE 201, PHY 232.

**MSE 450 TRANSPORT PHENOMENA FOR MATERIALS ENGINEERS.** (3)
The fundamentals of transport phenomena will be developed with emphasis on applications relating to materials engineering. Emphasis will be on heat transfer. Mass and momentum transfer will be demonstrated by analogy to heat transfer. Prereq: CME 210.

**MSE 451 MATERIALS THERMODYNAMICS.** (3)
Solution thermodynamics; partial molal quantities; ideal and non-ideal solutions; application of thermodynamics to phase equilibria; heterogeneous equilibria; free energy-composition relationships; temperature-pressure relationships; nitrogen in iron and steel and the iron-carbon system. Prereq: CME 210.

**MSE 480 MATERIALS DESIGN.** (3)
A capstone engineering design experience involving analysis, with some treatments of engineering economics of real processes, design of materials, fabrication problems and techniques, and prediction of model material systems.

**MSE 506 MECHANICS OF COMPOSITE MATERIALS.** (3)
A study of structural advantages of composite materials over conventional materials, considering high strength-to-weight and stiffness-to-weight ratios. Fiber reinforced, laminated and particulate materials are analyzed. Response of composite structures to static and dynamic loads, thermal and environmental effects, and failure criteria are studied. Prereq: EM 302, engineering standing or consent of instructor. (Same as EM 506.)

**MSE 512 ELECTRONIC MATERIALS AND PROCESSING.** (3)
Methods to produce and process electronic materials: solidification of electronic materials, stress-strain considerations in processing, defect control, diffusion of dopants, oxidation and methods of structural, electronic and chemical characterization. Prereq: Engineering standing or graduate level.

**MSE 531 POWDER METALLURGY.** (3)
Study of the principles of powder metallurgy relating to alloys of unusual compositions, metal and nonmetal combinations, porous and laminated products, composite metals, and high-melting alloys. Prereq: Consent of instructor.

**MSE 535 MECHANICAL PROPERTIES OF MATERIALS.** (3)
Introductory elasticity and plasticity theory; crystallographic nature of slip and twinning; fracture. Prereq: MSE 201, EM 302 and engineering standing or consent of instructor.

**MSE 536 CERAMIC ENGINEERING (3)**
The nature of ceramic materials. The forming and thermal treatment of ceramic products. Consideration of the various properties usually encountered and required of ceramic materials inclusive of cements. Lecture and recitation, three hours. Prereq: Consent of instructor.

**MSE 538 DEFORMATION PROCESSING. (4)**
Solidification of molten alloys; fundamentals of metal working; application of metal working theories to forging, rolling, extrusion, drawing and sheet forming. Lecture, three hours; laboratory, three hours per week. Prereq: Engineering standing.

**MSE 542 EXTRACTIVE METALLURGY. (4)**
The principles and processes employed in the preparation, treatment and production of various metals of economic or strategic importance; process economics. Lecture, three hours; laboratory, three hours per week. Prereq: CHE 440G or CHE 444G or MSE 451.

**MSE 550 CORROSION. (3)**
The fundamental principles of corrosion control and the basic mechanisms related to a better understanding of the causes of corrosion. The application of principles to practical situations. Prereq: CHE 107; MSE 201.

**MSE 552 POLYMERIC MATERIALS. (3)**
Relating properties to structure; properties of polymer materials; mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: CHE 230 or CHE 236, or consent of instructor. (Same as CME 552.)

**MSE 554 CHEMICAL AND PHYSICAL PROCESSING OF POLYMER SYSTEMS. (3)**
Theory related to the chemical and physical processing of polymer systems, polymer chemistry, non-Newtonian flow behavior, stress and strain tensors, polymer processing operations and technology. Prereq: CHE 232 and CME 425, or consent of instructor. (Same as CME 554.)

**MSE 556 INTRODUCTION TO COMPOSITE MATERIALS. (4)**
Applications, materials selection and design of composite materials. Relation between properties of constituent materials and those of composite. Processing methods for materials and for some structures. Lab focuses on preparation and testing of composite materials and their constituents. Lecture, three hours; laboratory, three hours per week. Prereq: MA 214, CHE 236, PHY 232, MSE 201, or consent of instructor. (Same as EM 556.)

**MSE 558 PRINCIPLES OF POLYMER CHARACTERIZATION AND ANALYSIS. (3)**
A lecture course exploring the fundamental chemical and physical aspects of a range of characterization methods as applied to polymeric systems; the primary objective will be the development of a broad understanding of the various tools available for polymer characterization both on the molecular level and as bulk materials. Prereq: CME 320, ME 330,. or consent of instructor. (Same as CME 558.)

**MSE 561 ELECTRIC AND MAGNETIC PROPERTIES OF MATERIALS. (3)**
Study of dielectric and magnetic materials. Topics include dielectric relaxation, conduction and breakdown mechanisms, liquid crystals, ferroelectrics, magnetic resonance and relaxation, measurement techniques. Prereq: MSE 212 and PHY 361 or EE 461G or consent of instructor. (Same as EE 561.)

**MSE 568 FIBER OPTICS. (3)**
The course presents theory and practice related to (a) fiber optic cable and their fabrication, (b) fiber optic transmitters and detectors, (c) fiber optic communication systems and (d) fiber optic remote sensors. Prereq: EE 468G. (Same as EE 568.)

**MSE 599 TOPICS IN MATERIALS SCIENCE AND ENGINEERING (Subtitle required). (2-3)**
A detailed investigation of a topic of current significance in materials science and engineering such as biomedical synthetics, electronic properties of materials, advances in metal working, history of material technology, quantitative metallography. Theory of disclinations, scanning electron microscopy. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the MSE 599 number. Prereq: Variable; given when topic identified.

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

***MSE 607 ANALYSIS OF METAL CUTTING PROCESSES. (3)**
Advanced study of metal cutting involving the mechanics of metal cutting including cutting forces, tool-wear/tool-life and temperature analysis, surface finish and integrity, chip control, machinability assessments and advances in cutting tool technology. Prereq: ME 505. (Same as ME/MFS 607).

**MSE 632 ADVANCED MATERIALS SCIENCE. (3)**
Classification of solids, atomic structure and bonding, relation of structure to properties, deformation behavior and failure. Prereq: Consent of instructor.

**MSE 635 ADVANCED MECHANICAL METALLURGY. (3)**
Theory of dislocations in crystals and their role in strength, plasticity, work hardening and fracture of crystalline solids. Prereq: Consent of instructor.

**MSE 636 DISLOCATION THEORY. (3)**
Fundamentals of elastic theory of dislocations and the kinematics of dislocation motion: straight dislocations, curved dislocation, self-energies, interactions with other crystal defects, dislocation multiplication. Prereq: MSE 535 or EM 531 or equivalent.

**MSE 650 ADVANCED MATERIALS THERMODYNAMICS. (3)**
Study of reactions of materials with chemical environments. Introduction to irreversible thermodynamics. Emphasis on current literature. Prereq: Consent of instructor.

**MSE 659 ADVANCED PHASE DIAGRAMS. (3)**
Review of thermodynamic fundamentals and application to binary pressure-temperature-composition diagrams. Construction and interpretation of ternary temperature-composition diagrams. Review and discussion of important ternary diagrams. Prereq: MSE 451 or equivalent.

**MSE 661 ADVANCED PHYSICAL METALLURGY I. (3)**
Study of the theory of phase transformations in metallic systems. Analysis of rate controlling processes for nucleation and growth controlled phase changes and for order-disorder reactions. Prereq: MSE 362 and 412 or consent of instructor.

**MSE 662 ADVANCED PHYSICAL METALLURGY II. (3)**
Solidification theory and mechanisms. Diffusion in solids. Prereq: MSE 661 or consent of instructor.

**MSE 665 CRYSTALLOGRAPHY AND X-RAY ANALYSIS. (4)**
Elements of crystallography, nature of X-rays, diffraction by crystal lattice, the structure factor and crystal structure determinations in crystal lattices, X-ray camera and diffractometer techniques and application of these to determination of phase diagrams, preferred orientation and residual stresses. Lecture, three hours; laboratory, three hours. Prereq: MSE 361.

**MSE 666 DIFFRACTION METHODS IN MATERIALS SCIENCE. (4)**
Application of thin foil electron transmission methods to the study of the defect structure in crystalline solids, theory of electron diffraction contrast phenomena, sample preparation, X-ray theory and methods applied to the study of deformation characteristics, order-disorder transformations, and crystal structure analysis. Lecture, two hours; laboratory, six hours. Prereq: MSE 665.

**MSE 699 ADVANCED TOPICS IN MATERIALS SCIENCE AND ENGINEERING (Subtitle required.) (3)**
A detailed investigation of an advanced topic of current significance in materials science and engineering such as (1) nanometer materials, (2) structures of superconductors and (3) materials characterization under high rates of deformation. May be repeated under different subtitles to a maximum of nine credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the MSE 699 number. Prereq: Variable, given when topic is identified.

**MSE 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**MSE 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**MSE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**MSE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**MSE 771 SEMINAR. (0)**
Review of current literature in the field of metallurgical engineering and presentation of papers thereon. Presentation of talks on departmental research. Group and panel discussions. Required of all graduate students every semester. Lecture, one hour per week.

**MSE 781 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (1-3)**
Literature research and planning of research programs; shop problems and technical writing, including a term paper, are required. Consultation and lecture by appointment. May be repeated to a maximum of nine credits.

**MSE 782 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (3)**
A continuation of MSE 781. Laboratory, six hours; consultation and lecture by appointment. May be repeated to a maximum of nine credits.

## MUC Music - Class Instruction

**MUC 150 CLASS INSTRUCTION IN PIANO. (1)**
A beginning course in the fundamentals of playing the piano. Lecture, two hours. Prereq: For music majors; other students by consent of instructor.

**MUC 151 CLASS INSTRUCTION IN PIANO. (1)**
A beginning course in the fundamentals of playing the piano. For music majors; other students by consent of instructor. Lecture, two hours. Prereq: MUC 150.

**MUC 152 CLASS INSTRUCTION IN PIANO. (1)**
A course in the fundamentals of playing the piano. For music majors; others by consent of instructor. Lecture, two hours. Prereq: MUC 151.

**MUC 153 CLASS INSTRUCTION IN PIANO. (1)**
A course in the fundamentals of playing the piano. For music majors; others by consent of instructor. May be repeated to a maximum of two credits with consent of instructor. Instruction, two hours. Prereq: MUC 152.

**MUC 155 VOICE CLASS FOR NON-MUSIC MAJORS. (1)**
Applied voice group instruction for non-music majors with emphasis on basic breathing and vocal technique, elements of music notation, and diction. May be repeated to a maximum of two credits. Laboratory, two hours per week. Prereq: Consent of instructor.

**MUC 157 CLASS INSTRUCTION IN PERCUSSION INSTRUMENTS. (1)**
A beginning course in the fundamentals of playing and teaching percussion instruments. Instruction, three hours. Prereq: For music majors only; others by consent of instructor.

**MUC 158 CLASS INSTRUCTION IN WOODWIND INSTRUMENTS. (1)**
A beginning course in the fundamentals of playing and teaching woodwind instruments. May be repeated to a maximum of two credits. Prereq: For music majors; others by consent of instructor.

**MUC 161 CLASS INSTRUCTION IN STRING INSTRUMENTS. (1)**
A beginning course in the fundamentals of playing and teaching violin, viola, cello and string bass. May be repeated to a maximum of two credits. Prereq: For music majors; others by permission of instructor. For nonstring majors who take this course for two semesters, it must be taken sequentially beginning in the fall semester.

**MUC 163 CLASS INSTRUCTION IN BRASS INSTRUMENTS. (1)**
A beginning course in the fundamentals of playing and teaching brass instruments. Lecture, three hours per week. May be repeated to a maximum of two credits. Prereq: For music majors; others by consent of instructor.

**MUC 164 CLASS INSTRUCTION IN GUITAR. (1)**
A beginning course in the fundamentals of playing the folk guitar. For nonmusic majors, music majors, or classroom teachers. Two hours laboratory per week. May be repeated to a maximum of two credits. Prereq: Consent of instructor.

**MUC 265 VOICE CLASS FOR THEATRE MAJORS. (1)**
Applied voice group instruction with emphasis on vocal preparation for musical theatre performance. Elements of music notation. Two hours laboratory per week. May be repeated to a maximum of two credits. Prereq: Consent of instructor.

**MUC 374 JAZZ PIANO. (2)**
A study of the basic elements of jazz piano with reference to its use in improvisation. Topics of concentration will include listening, analysis, and practical keyboard application, in addition to a study of the historical perspective and important styles. Prereq: MUS 272 and MUS 273, or consent of instructor.

**CHAMBER MUSIC ENSEMBLES**

**MUC 170 STRING ENSEMBLE. (1)**
The study of string instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 171 BRASS ENSEMBLE. (1)**
The study of brass instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 172 WOODWIND ENSEMBLE. (1)**
The study of woodwind instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 173 PERCUSSION ENSEMBLE. (1)**
The study of percussion instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 174 UNIVERSITY CHORALE. (1)**
An auditioned choral ensemble for the study of choral literature through performance. Class will meet for five hourly rehearsals per week. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

**MUC 176 PIANO ENSEMBLE. (1)**
Study of piano ensemble chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 177 GUITAR ENSEMBLE.** (1)
The study of guitar ensemble music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

LARGE MUSICAL ORGANIZATIONS

**MUC 175 JAZZ ENSEMBLE.** (1)
Study of jazz through performance. May be repeated to a maximum of eight credits. Laboratory, three hours. Prereq: Consent of instructor.

**MUC 187 CONCERT BAND.** (1)
A large concert band primarily for the general student desiring continuation of instrumental music experience. Laboratory, three hours. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

**MUC 188 SYMPHONIC BAND.** (1)
A select band engaged in preparation and performance of a variety of music composed for this medium. May be repeated to a maximum of four credits. Laboratory, four hours. Prereq: Audition and consent of instructor.

**MUC 189 WIND ENSEMBLE.** (1)
The University's select band for performance of challenging literature in the wind repertoire. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

**MUC 190 MARCHING BAND.** (1)
Preparation for and performance at University athletic functions, primarily football games. May be repeated to a maximum of four credits. Prereq: Audition and consent of instructor.

**MUC 191 ORCHESTRA.** (1)
Students who have demonstrated the required ability are given an opportunity to study and perform standard orchestral literature. May be repeated seven times for a total of eight credits. Prereq: Audition and consent of instructor.

**MUC 192 UNIVERSITY CHORISTERS.** (1)
Ordinarily for music majors only. Three one-hour meetings per week. May be repeated seven times for a total of eight credits. Prereq: Audition and consent of instructor.

**MUC 196 OPERA WORKSHOP.** (1)
Study of the principles and techniques of opera production through class presentation of scenes and complete works. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

**MUC 570 ADVANCED CHAMBER MUSIC ENSEMBLE.** (1)
Study of chamber music through performance. May be repeated to a maximum of six credits. Laboratory, two hours. Prereq: Consent of instructor.

**MUC 596 OPERA WORKSHOP.** (1-3)
Study of the principles and techniques of opera production and direction through class presentation of scenes and complete works. May be repeated to a maximum of six hours. Prereq: Consent of instructor.

**MUC 675 JAZZ ENSEMBLE.** (1)
Study of jazz through performance. Laboratory, two hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

**MUC 689 WIND ENSEMBLE.** (1)
The University's select band for performance of challenging literature in the wind repertoire. Laboratory, three hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

**MUC 691 ORCHESTRA.** (1)
Students who have demonstrated the required ability are given an opportunity to study and perform standard orchestral literature. Laboratory, five hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

**MUC 692 UNIVERSITY CHORISTERS.** (1)
The course offers students the opportunity to learn and perform the best choral literature in the repertoire. Laboratory, three hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

## MUP Music - Performance Courses

(SPECIAL FEE)

**NOTE:** Students enrolled in MUP courses for two or more credit hours may be required to attend performance classes as well as lessons. See individual course syllabus for more information.

**Prereq:** Satisfactory audition and/or approval of instructor.

| Undergraduate Courses Numbered 100-499 (1-3) | Graduate Courses Numbered 500 and above (1-4) |
|---|---|
| **Piano** MUP 101, 201, 301, 401, | 501, 601, 701 |
| **Voice** MUP 102, 202, 302, 402, | 502, 602, 702 |
| **Organ** MUP 103, 203, 303, 403, | 503, 603, 703 |
| **Violin** MUP 104, 204, 304, 404, | 504, 604, 704 |
| **Viola** MUP 105, 205, 305, 405, | 505, 605, 705 |
| **Cello** MUP 106, 206, 306, 406, | 506, 606, 706 |
| **String Bass** MUP 107, 207, 307, 407, | 507, 607 |
| **Flute** MUP 108, 208, 308, 408, | 508, 608, 708 |
| **Oboe** MUP 109, 209, 309, 409, | 509, 609, 709 |
| **Clarinet** MUP 110, 210, 310, 410, | 510, 610, 710 |
| **Bassoon** MUP 111, 211, 311, 411, | 511, 611, 711 |
| **Trumpet** MUP 112, 212, 312, 412, | 512, 612, 712 |
| **French Horn** MUP 113, 213, 313, 413, | 513, 613, 713 |
| **Trombone** MUP 114, 214, 314, 414, | 514, 614, 714 |
| **Euphonium** MUP 115, 215, 315, 415, | 515, 615 |
| **Tuba** MUP 116, 216, 316, 416, | 516, 616, 716 |
| **Saxophone (alto)** MUP 117, 217, 317, 417, | 517, 617, 717 |
| **Percussion** MUP 118, 218, 318, 418, | 518, 618, 718 |
| **Harp*** MUP 119, 219, 319, 419, | 519, 619 |
| **Harpsichord** MUP 120, 220, 320, 420, | 520, 620 |
| **English Horn** MUP 321, | 521 |
| **Historical Instruments*** MUP 322, 422, | 522, 622 |
| **Classical Guitar** MUP 123, 223, 323, 423, | 523, 623 |

*Consult the School of Music before enrolling.

**#MUP 330 VOCAL COACHING FOR SINGERS.** (1-3)
A course to prepare the vocal student for performance in concert, recital, and opera. Materials to be covered include style, performance practices, diction, interpretation, and audition preparation. Course will include preparation of operative as well as art song literature. Repertoire suitable for the individual student will be assigned by the voice teacher and prepared in this course by the vocal coach only after the music has been technically prepared by student's individual voice teacher. May be repeated to a maximum of six credits. Prereq: Permission of vocal instructor.

**#MUP 430 VOCAL COACHING FOR SINGERS.** (1-3)
A course to prepare the vocal student for performance in concert, recital, and opera. Materials to be covered include style, performance practices, diction, interpretation, and audition preparation. Course will include preparation of operative as well as art song literature. Repertoire suitable for the individual student will be assigned by the voice teacher and prepared in this course by the vocal coach only after the music has been technically prepared by student's individual voice teacher. May be repeated to a maximum of six credits. Prereq: Permission of vocal instructor.

**#MUP 530 VOCAL COACHING FOR SINGERS.** (1-3)
A course to prepare the vocal student for performance in concert, recital, and opera. Materials to be covered include style, performance practices, diction, interpretation, and audition preparation. Course will include preparation of operative as well as art song literature appropriate to designated course level. May be repeated to a maximum of six credits. Prereq: Permission of vocal/opera instructors.

**MUP 558 CONDUCTING.** (1-4)
Private instruction in advanced conducting. Prereq: MUS 358 or MUS 364 or MUS 365 or consent of instructor.

**#MUP 630 VOCAL COACHING FOR SINGERS.** (1-3)
A course to prepare the vocal student for performance in concert, recital, and opera. Materials to be covered include style, performance practices, diction, interpretation, and audition preparation. Course will include preparation of operatic as well as art song literature appropriate to designated course level. May be repeated to a maximum of six credits. Prereq: Permission of vocal/opera instructors.

**MUP 658 CONDUCTING.** (1-4)
Private instruction in advanced conducting. Prereq: MUS 358 or MUS 364 or MUS 365, or consent of instructor.

**#MUP 730 VOCAL COACHING FOR SINGERS.** (1-3)
A course to prepare the vocal student for performance in concert, recital, and opera. Materials to be covered include style, performance practices, diction, interpretation, and audition preparation. Course will include preparation of operatic as well as art song literature appropriate to designated course level. This course may only be taken after all applied vocal lesson requirements have been met. Prereq: Permission of vocal/opera instructors.

**One-Hour Credit**

The following may register for one-hour credit performance courses:

1) Music majors electing a secondary instrument or a major instrument credit by direction of the adviser to fulfill degree performance requirements.
2) Students from other divisions of the University desiring elective credit but only upon approval of the School of Music.

Students in one-hour credit performance courses for secondary instrument credit may be taught in studio groups of four or less. Each undergraduate one-hour course may be repeated twice for credit. Each graduate one-hour course may be repeated three times for credit.

**Two-Hour Credit**

The following may register for two-hour credit performance courses:

1) Music majors in the Music Education or B.A. in Music degree programs;
2) Music minors;
3) Graduate students by direction of the adviser.

Each undergraduate two-hour course may be repeated twice for credit. Each graduate two-hour course may be repeated three times for credit.

**Three-Hour Credit**

The following may register for three-hour credit performance courses:

1) Music majors in the B.M. or M.M. in performance degree programs;
2) D.M.A. students by direction of the adviser.

Each undergraduate three-hour course may be repeated twice for credit. Each graduate three-hour course may be repeated three times for credit. Not offered during the summer session.

**Four-Hour Credit**

Only graduate students in the music performance programs may register for four-hour courses. These courses are available only at the 600- and 700-levels. Doctoral students only may register for 700-level courses. Four-hour credit courses may be repeated three times for credit. Not offered during the summer session.

## MUS Music - Other Music Courses

**MUS 001 RECITAL ATTENDANCE.** (0)
The course will consist of attendance at recitals. Each freshman and sophomore student must attend a minimum of 16 concerts per semester (for a total of four semesters), to be chosen from faculty recitals, senior or graduate recitals, concerts by UK ensembles, Tuesday noon student recitals, Chamber Music series, Central Kentucky Concert and Lecture Association, and Gallery Series. One-hour lab per week. Grade: P or F.

**MUS 100 INTRODUCTION TO MUSIC.** (3)
A study of the elements of music as they apply to the listening experience; designed for the nonmusic major with no prior knowledge of music. Emphasis will be placed upon developing an awareness and understanding of musical styles from the Renaissance to the present. Music majors may not use this course to fulfill either General Studies, University Studies, or music history requirements.

**MUS 120 FOREIGN LANGUAGE VOCAL DICTION.** (1)
A study of diction factors in Italian, German, and French vocal music. Lecture, two hours. May be repeated to a maximum of three hours. Prereq: Consent of instructor.

**MUS 140 MUSIC ACOUSTICS.** (3)
An introduction to certain physical laws governing sound, sources of sound and mediums through which sound travels. Included are acoustical explanations of how musical instruments produce sounds and their characteristic timbres. (Same as PHY 140.)

# - New course * - Course change † - Course dropped

**MUS 170 THEORY I—ELEMENTARY AURAL THEORY.** (2)
Development of aural responsiveness to all elements of music, and of sightsinging techniques as an aid to music comprehension and performance. Prereq: Satisfactory completion of Theory Placement Exam; prereq or concur: MUS 171.

**MUS 171 THEORY I—ELEMENTARY WRITTEN THEORY.** (2)
The acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. Prereq: Satisfactory completion of Theory Placement Examination.

**MUS 172 THEORY I—ELEMENTARY AURAL THEORY.** (2)
Development of aural responsiveness to all elements of music, and of sightsinging techniques as an aid to music comprehension and performance. Prereq: MUS 170; prereq or concur: MUS 173

**MUS 173 THEORY I—ELEMENTARY WRITTEN THEORY.** (2)
The continuation of the work of MUS 171. Lecture, three hours. Prereq: MUS 171.

**MUS 174 THEORY FOR NONMUSIC MAJORS.** (3)
An introduction to the basic materials of musical organization, focusing on music reading, rudiments of notation, pitch, scale, tonal, and rhythmic organization, melodic construction, simple harmonic vocabulary, and beginning aural training. Individual composition and improvisation exercises are used to approach much of this material. Ability to read music is not a prerequisite.

**MUS 201 MUSIC IN WESTERN CULTURE TO 1700.** (3)
Music from Ancient Greece to the end of the 17th century, as seen against a background of artistic, cultural, religious, and political change in Western Europe. Music majors may not use this course to fulfill either the University Studies or music history requirements.

**MUS 202 MUSIC IN WESTERN CULTURE, 1700-PRESENT.** (3)
A survey of music from 1700 (Vivaldi, Bach, Handel) to the present, in the context of artistic, cultural, political, and social changes in the Western cultural community. Music majors may not use this course to fulfill either University Studies or degree requirements.

**MUS 203 HISTORY OF MUSIC.** (3)
A survey of the history of music from ancient times through the Renaissance (up to approximately 1600). Required of all music majors. Prereq: Music majors— sophomore standing; nonmusic majors— consent of instructor.

**MUS 206 AMERICAN MUSIC.** (3)
A history of music in America from c. 1620 to the present. Will require listening to recordings, reading the primary text and suggested readings in books, periodicals and documents. Students should become aware of important names, places, events and styles in music as well as important historical trends and movements.

**MUS 220 SYMPHONIC MUSIC.** (3)
A survey of the symphonic repertoire from the Classical through the Contemporary Periods. Emphasis will include the development of listening skills and an awareness of musical styles. Music majors may not use this course to fulfill University Studies or degree requirements.

**MUS 221 A SURVEY OF CHORAL MASTERWORKS: BAROQUE TO THE PRESENT.** (3)
A survey of the choral genre, tracing its development from the 18th century to the present. Lectures will include structure and symbolism in choral music as well as directed listening with emphasis upon historical and structural analysis of the works studied. In addition, attendance at selected concerts is expected.

**MUS 222 HISTORY AND SOCIOLOGY OF ROCK MUSIC.** (3)
A listening survey course, with a chronological approach, covering the years 1950- present. Emphasis will be on both the music and the sociological climate reflected and advocated by the music.

**MUS 260 TEACHING MUSIC IN THE ELEMENTARY GRADES I.** (2)
Together with MUS 261, this course is designed to develop musicianship, skills, and techniques teachers need to direct musical activities effectively in the elementary classroom. Music fundamentals and teaching materials are introduced through active participation in musical activities. Focus is on the music education in the lower elementary grades. For nonmusic majors or classroom teachers. Lecture, one hour; laboratory, two hours per week.

**MUS 261 TEACHING MUSIC IN THE ELEMENTARY GRADES II.** (2)
Continuation of MUS 260. Focus is on the music education in the upper elementary grades. This course must be taken immediately following completion of MUS 260. For nonmusic majors or classroom teachers. Lecture, one hour; laboratory, two hours per week. Prereq: MUS 260.

**MUS 262 VOCAL MUSIC METHODS AND MATERIALS SEMINAR I.** (2)
Fundamentals of singing, posture, breathing, diction. Reading of choral literature suitable for the junior and senior high school chorus. Beginning conducting. Accompanying. Lecture, two hours; laboratory, one hour. Prereq: MUS 172, 173 or consent of instructor.

**MUS 263 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR I.** (2)
Study of the history and philosophy of music education in the public schools and a study of the methods and materials in teaching instrumental music in the elementary schools. Laboratory band and orchestra experience with secondary instruments. Observations in the public schools with emphasis on the elementary and junior high school levels. Lecture, two hours; laboratory, one hour. Prereq: MUS 172, 173 or consent of instructor.

**MUS 264 VOCAL MUSIC METHODS AND MATERIALS SEMINAR II.** (2)
Warm-up exercises, vocalizing, sight-reading in the chorus. Vocal styles. Reading and conducting choral literature suitable for the junior and senior high school chorus. Analyzing vocal problems. The teenage voice, including the boy's changing voice. Lecture, two hours; laboratory, one hour. Prereq: MUS 262.

**MUS 265 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR II.** (2)
A study of the organization and administration of the school instrumental program. Overview of methods and materials and the beginning of repertoire study for school bands and orchestras. Continuation of observations and visitations. Continuation of laboratory band and orchestra experiences. Study of the fundamentals of conducting. Lecture, two hours; laboratory, one hour. Prereq: MUS 263.

**MUS 270 THEORY II— AURAL THEORY.** (2)
Development of aural responsiveness to all elements of music, and of sightsinging techniques as an aid to music comprehension and performance. Prereq: MUS 172; prereq or concur: MUS 271.

**MUS 271 THEORY II— WRITTEN THEORY.** (2)
A continuation of the acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. Prereq: MUS 171, 173.

**MUS 272 THEORY II— AURAL THEORY.** (2)
Development of aural responsiveness to all elements of music, and of sightsinging techniques as an aid to music comprehension and performance. Prereq: MUS 270; prereq or concur: MUS 273.

**MUS 273 THEORY II— WRITTEN THEORY.** (2)
The continuation of the work of MUS 271. Three class hours per week. Prereq: MUS 271.

**MUS 300 HISTORY OF JAZZ.** (3)
A listening survey course covering the chronological evolution of jazz from its West African and European roots, through its germination in America, to the present. Emphasis will be on the various styles and functions of jazz, particularly as they have been affected by changing social-cultural patterns during the twentieth century.

**MUS 301 APPALACHIAN MUSIC.** (3)
A survey of musical genre and styles in the Southern Appalachian region. Vocal and instrumental, sacred and secular materials will be covered, together with the interchanges between black and white contributions. Prereq: MUS 100 or consent of instructor.

**MUS 302 HISTORY OF MUSIC.** (3)
A survey of the history of music from the Baroque through the Classical periods (approximately 1600-1827). Required of all music majors. Prereq: For music majors, junior standing; nonmusic majors, consent of instructor.

**MUS 303 HISTORY OF MUSIC.** (3)
A survey of the history of music from the Romantic period to the present (approximately 1827 to the present). Required of all music majors. Prereq: Music majors, junior standing; nonmusic majors, consent of instructor.

**#MUS 325 SHAKESPEARE AND MUSIC.** (3)
The study of music inspired by the plays of Shakespeare, Shakespeare's use of music in his plays, and an overview of music in Elizabethan times. The course is designed for non-majors.

**MUS 330 MUSIC IN THE WORLD (Subtitle required).** (3)
This course examines the music of a chosen country or region of the world. The study of the historical, stylistic, theoretical, and functional aspects of the music will be related to the socio-historical, philosophical and other cultural aspects of the people in that country or region. Prereq: Junior standing or permission of the instructor.

**MUS 350 MUSIC EDUCATION WORKSHOP.** (1-2)
Intensive study of specialized methods and materials in one of the following areas of music education: elementary and general music; piano; orchestra, band; jazz or choral. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

**MUS 358 CONDUCTING I.** (2)
A study of the technique and practice of fundamentals of conducting. Prereq: Junior standing in music.

**MUS 360 GENERAL MUSIC I.** (3)
A study of the philosophy, the curriculum, and the process involved in promoting musical development of children in the elementary, middle, and high school environment. A field experience is required. Prereq: Junior standing in music.

**MUS 361 GENERAL MUSIC II.** (3)
Methods, materials and techniques of teaching general music with emphasis on activities for the early childhood and elementary children. A field experience is required. Prereq: MUS 360.

**MUS 362 VOCAL MUSIC METHODS AND MATERIALS SEMINAR III.** (2)
The large chorus. Organizational details, rehearsal procedures, public performances. Techniques of vocal production applied to the total choral teaching situation. Interpretation, balance, blend and intonation. Conducting. Accompanying. Prereq: MUS 262, 264.

**MUS 363 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR III.** (2)
A continuation of MUS 263 and 265. A more intensive study of the rehearsal techniques used with high school bands and orchestras. Laboratory band and orchestra for conducting techniques and secondary instrument playing. Marching band techniques and procedures. Current trends in instrumental music education. Study of literature for all instrumental ensembles. Continued observation in the public schools with emphasis on high school bands and orchestras. Prereq: MUS 263, 265.

**MUS 365 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR IV.** (2)
A summary of the administrative procedure for the high school band and orchestra director. Advanced conducting with emphasis on rehearsal procedures using advanced music for the high school ensemble. Assignment to public school instrumental teacher for teaching participation. Lecture, two hours; laboratory, one hour. Prereq: MUS 263, 265, 363.

**MUS 366 MARCHING BAND TECHNIQUES.** (2)
A study of contemporary marching band techniques, styles, and trends with emphasis on drill writing and arranging for the marching band. Two hours lecture per week; one hour laboratory per week. Prereq: Consent of instructor.

**MUS 370 THEORY III— ADVANCED HARMONY AND COUNTERPOINT.** (2)
A study of the 19th century harmonic idioms through projects in analysis and composition. Lecture, three hours. Prereq: MUS 273.

**MUS 371 INSTRUMENTATION AND ARRANGING.** (2)
A basic course in instrumentation and arranging for typical school instrumental and vocal ensembles. Prereq: MUS 273.

**MUS 372 MUSICAL ANALYSIS.** (2)
A study of musical style through structural, harmonic and melodic analyses. Prereq: MUS 273.

**MUS 373 FUNDAMENTALS OF JAZZ THEORY.** (2)
A study of the basic theoretical elements of jazz with reference to their use in improvisation. Topics of study will include harmonic, rhythmic, and melodic structure, keyboard application, and a study of styles and improvisation. Prereq: MUS 272 and 273, or consent of instructor.

**MUS 390 TOPICS IN MUSIC HISTORY (Subtitle required).** (3)
Studies of a specific composer, genre, school of composers, or a topic crossing the traditional boundaries of music history. May be repeated to a maximum of six credits when identified by different course subtitles. Prereq: MUS 203, 302, and 303, or consent of instructor.

**MUS 395 INDEPENDENT WORK IN MUSIC.** (1-3)
May be repeated to a maximum of six credits. Prereq: Major in music and a standing of 3.0 or consent of instructor.

**#MUS 400G MUSIC HISTORY REVIEW.** (3)
A review of music history from the Medieval period through the twentieth century. May not be used to satisfy major requirements for Bachelors degrees in the College of Fine Arts. Prereq: Provisional graduate standing.

**#MUS 470G REVIEW OF HARMONY.** (1)
A review of common practice diatonic and chromatic harmony, through written work and analysis. May not be used to satisfy major requirements for Bachelors degrees in the College of Fine Arts. Lecture, two hours per week. Prereq: Provisional graduate standing.

**#MUS 471G REVIEW OF AURAL SKILLS.** (1)
A review and continued development of basic listening skills, and the ability to comprehend aurally harmonic function within a tonal framework and musical structures, both micro-structures and macro-structures. May not be used to satisfy major requirements for Bachelors degrees in the College of Fine Arts. Lecture, two hours per week. Prereq: Provisional graduate standing.

**MUS 500 MUSIC OF THE MIDDLE AGES.** (3)
The development of Western music through the 14th century. Prereq: MUS 203 or consent of instructor.

**MUS 502 MUSIC OF THE BAROQUE ERA.** (3)
The history of vocal and instrumental music in the Baroque style from 1600 to 1750. Prereq: MUS 302 or consent of instructor.

**MUS 503 MUSIC OF THE CLASSIC PERIOD.** (3)
The development of music in the Classic style from the early 18th century to 1800. Prereq: MUS 302 or consent of instructor.

**MUS 504 MUSIC OF THE 19th CENTURY.** (3)
A study of master works of music composed in the 19th century. Prereq: MUS 303 or consent of instructor.

**MUS 505 MUSIC OF THE 20th CENTURY.** (3)
A stylistic study of representative compositions of the 20th century. Prereq: MUS 303 or consent of instructor.

**MUS 506 HISTORY OF AMERICAN MUSIC.** (3)
A study of music in America from Colonial times to ca. 1920. Prereq: MUS 302 and 303 or consent of instructor.

**MUS 520 VOCAL SOLO LITERATURE.** (3)
A stylistic study of solo vocal music from the Baroque to the present. Prereq: MUS 302 and 303 or consent of instructor.

**MUS 521 ORGAN LITERATURE.** (3)
A course of study designed to give the organ student a practical knowledge of the development of the organ, its construction, the standard literature, and teaching materials. Prereq: MUS 302 and 303 or consent of instructor.

**MUS 522 PIANO LITERATURE TO 1830.** (3)
An historical and analytical study of music for piano to 1830, including discussion of the development of the instrument and the emergence of the idiomatic piano writing. Prereq: MUS 302 or consent of instructor.

**MUS 523 PIANO LITERATURE SINCE 1830.** (3)
A historical and analytical study of music written for the piano from the inception of the Romantic period to the present, from the parallel perspectives of changes in the approach to the instrument and stylistic developments as they are reflected in piano writing. Prereq: MUS 303 or permission of instructor.

**MUS 530 COLLEGIUM MUSICUM.** (1-3)
The study and realization of performance practices in music from antiquity to the present. The number of credits granted will be determined by the involvement of the student, varying from rehearsal/performance (normally one hour credit) to detailed musicological research (to three hours credit). May be repeated to a maximum of nine credits. Prereq: Consent of instructor including determination of credit hour(s) to be granted per semester.

**MUS 540 APPLICATIONS OF MUSIC TECHNOLOGY.** (3)
Applications of music technology hardware and software, including but not limited to MIDI systems, sequencing, notation software, and MIDI code. Emphasis will be on use of technology as tools for creativity and productivity. Content will be continually updated. No prior computer or MIDI experience assumed; space preference given to music majors. Prereq: Nonmusic majors must obtain permission of instructor; ability to read music required.

**MUS 550 TOPICS IN MUSIC EDUCATION (Subtitle required).** (1-3)
In-depth study of a designated topic, special issue, philosophy, or methodology of music education. May be repeated to a maximum of nine credits when identified by different course subtitles. Prereq: Junior standing in music.

**MUS 560 ORFF SCHULWERK.** (1-3)
The study of the philosophy and the pedagogy of the Orff Schulwerk method through movement, discussion, performance, improvisation, composition, and demonstration. Number of credits awarded will depend on total number of hours of participation and the amount of work in musical arrangement, orchestration, and composition. May be repeated to a maximum of six credits. Prereq: Junior standing in music or approval of instructor.

**MUS 561 ORFF CERTIFICATION: LEVEL I, II, OR III.** (2)
An intensive and systematic study of the philosophy and the pedagogy of the Orff Schulwerk method based on the curriculum recommended by the American Orff Schulwerk Association. The three main components are ensemble, recorder, and movement. Participants must demonstrate competency in orchestration, recorder, and pedagogy in order to obtain certification. Lecture, two hours; laboratory, two hours per week. May be repeated in sequence to a maximum of six credits. Prereq: Junior standing in music or approval of instructor.

**MUS 563 MUSIC IN EARLY CHILDHOOD.** (3)
A comprehensive study of the musical growth and development of preschool and early elementary school children. Application of research findings in child development and music education to designing the environment, learning materials, and musical activities for young children through lectures, class discussions, demonstrations and field experiences in an early childhood laboratory. Lecture, two hours; laboratory, two hours per week. Prereq: MUS 261, or MUS 360 or approval of instructor.

**MUS 566 PIANO PEDAGOGY.** (3)
Investigation of techniques and materials for teaching piano in groups and to individual students, both children and adults. Prereq: Consent of instructor.

**MUS 570 ORCHESTRATION.** (2)
This course includes a study of the individual instruments of the orchestra and band with practice in scoring for these instruments. Prereq: MUS 371.

**MUS 571 ORCHESTRATION.** (2)
A continuation of MUS 570. Prereq: MUS 570.

**MUS 572 COUNTERPOINT.** (3)
A study of 16th century contrapuntal techniques and of contrapuntal influences in common-practice music. Prereq: MUS 273 or equivalent.

**MUS 573 COUNTERPOINT.** (3)
A study of 18th century contrapuntal techniques and of contrapuntal influences in Romantic and 20th century music. Prereq: MUS 273 or equivalent.

**MUS 574 COMPOSITION.** (2)
A basic course in original composition and orchestration. Prereq: MUS 371.

**MUS 575 COMPOSITION.** (2)
A continuation of MUS 574. Prereq: MUS 574.

**MUS 578 ANALYSIS AND STYLE SURVEY.** (3)
Studies in analytical terminology and methodology; survey of major stylistic practices of Western music. Prereq: MUS 372 or equivalent.

**MUS 600 RESEARCH I.** (3)
A course designed to acquaint students with basic techniques and tools used in music education research.

**MUS 601 FOUNDATIONS IN MUSIC EDUCATION.** (3)
An historical survey of thought concerning the place and significance of music in the education of the individual and the group.

**MUS 618 RESEARCH METHODS.** (3)
A survey of basic research techniques and materials in musicology and theory. Prereq: A reading knowledge of French or German.

**MUS 620 ADVANCED GERMAN VOCAL REPERTORY.** (3)
An intensive study of the stylistic and interpretive characteristics of German solo vocal literature.

**MUS 622 SYMPHONIC LITERATURE.** (3)
An intensive study of orchestral literature from the classical period to the present. Prereq: Graduate standing in music or consent of instructor.

**MUS 623 OPERA LITERATURE.** (3)
The development of opera as an art form, and analysis of representative operas from various areas. Prereq: Graduate standing in music or consent of instructor.

**MUS 624 CHAMBER MUSIC LITERATURE.** (3)
An intensive study of the development of instrumental chamber music. Prereq: Graduate standing in music or consent of instructor.

**MUS 630 BAROQUE PERFORMANCE PRACTICES.** (3)
An introduction to the problems, methods, bibliography, and discography of performance practices of the Baroque era, with particular emphasis on vocal and instrumental music of France, Germany, and Italy. Prereq: MUS 502 or consent of instructor.

**MUS 650 MUSIC EDUCATION WORKSHOP.** (1-4)
Intensive study of advanced methods and materials in one of the following areas of music education: elementary and general music, the school orchestra, the school band, choral music. May be repeated once for a total of two, three or four credits.

**MUS 660 ADVANCED MUSIC EDUCATION METHODS AND MATERIALS (Subtitle required).** (3)
An in-depth study and analysis of the methodology and materials and their development in music education. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: Graduate standing or consent of instructor.

**MUS 664 MUSIC AND SPECIAL LEARNERS.** (3)
This course is directed toward developing competencies and understandings relating to non-music and music educational objectives in therapy and education. Prereq: Consent of instructor.

**MUS 665 PHYSIOLOGY AND FUNCTIONING OF THE SINGING VOICE.** (3)
Detailed study of vocal physiology and acoustics of the singing voice. Major historical sources and recent scientific research form the basis of the course. Designed for professional voice teachers and music educators who work with singers. Prior study of acoustics recommended.

**MUS 667 MATERIALS, TECHNIQUES AND LITERATURE OF VOICE TRAINING.** (3)
Survey of currently published books, anthologies, and other materials for voice teaching. Various approaches to teaching vocal technique will be examined; other pertinent literature explored. Prereq: MUS 665.

**MUS 670 MUSICAL STYLE I.** (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music of antiquity through 1600. Prereq: MUS 578 or equivalent.

**MUS 671 MUSICAL STYLE II.** (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music of the Baroque and Classical periods. Prereq: MUS 578 or equivalent.

**MUS 672 MUSICAL STYLE III.** (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music from 1820 to Bartok, Stravinsky and Schoenberg. Prereq: MUS 578 or equivalent.

**MUS 673 ADVANCED COMPOSITION.** (2)
May be repeated to a maximum of six credits. Prereq: MUS 575.

**MUS 674 PEDAGOGY OF THEORY.** (3)
Examination of the resources and techniques of teaching undergraduate music theory (aural and written components). Extensive review of the textbook literature, study of the application of contrasting theoretical approaches, and the examination of relevant Computer Assisted Instruction materials. Requirements to include practice teaching and observation of undergraduate music theory classes (MUS 171-173; 271-273; 170-172; 270-272). Prereq: MUS 578 or equivalent.

**MUS 676 ADVANCED ANALYTICAL TECHNIQUES.** (3)
Study of the most significant approaches to music analysis of the 20th century, including Schenkerian analysis, Forte set theory, and others. Prereq: MUS 578 or equivalent.

**MUS 677 CONTEMPORARY MUSIC IDIOMS.** (3)
Survey, with intensive study of representative works, of musical trends since 1935. Prereq: MUS 578 or 671 or 672.

**MUS 678 HISTORY OF THEORY.** (3)
A survey of theoretical ideas from the Greeks through 19th century English and German theorists. Prereq: MUS 578 or equivalent.

**MUS 680 BAND HISTORY AND LITERATURE.** (3)
A study of the heritage of the wind band through its leaders and literature, from its earliest roots to the present, with emphasis on the period from 1950 to the present. Prereq: Consent of instructor.

**MUS 681 ADVANCED REHEARSAL TECHNIQUES - BAND.** (3)
The development of effective rehearsal skills in the secondary school and university band settings, with emphasis on performance orientation, the development of aural concepts and advanced rehearsal analysis and techniques. Prereq: MUS 365, teaching experience or permission of instructor.

**MUS 684 ADVANCED STRING METHODS AND MATERIALS.** (3)
The study of string pedagogy through historical perspectives as it relates to the individual instruments as well as to class instruction. Prereq: Graduate standing in music or approval of instructor.

**MUS 690 TOPICS IN MUSICOLOGY (Subtitle required).** (3)
Investigation of critical and historical problems in musicology; intensive study of a specific composer, genre, or school of composers. May be repeated to a maximum of six credits when identified by different course subtitles. Prereq: Graduate standing and consent of instructor.

**#MUS 695 INDEPENDENT WORK IN MUSIC.** (1-3)
Study of an individually selected topic relevant to a student's academic development. For work in musicology, theory, music education, or vocal literature, students should enroll in the designated independent work courses listed separately. May be repeated to a maximum of six credits. Prereq: Graduate standing in music and consent of instructor.

**MUS 700 MEDIEVAL NOTATION.** (3)
The study and transcription of the notation of medieval music from the earliest plainchant sources to mannered notation of the late Ars Nova in Italy and France. Lecture, three hours; laboratory, one hour. Prereq: Consent of instructor.

**MUS 701 RENAISSANCE NOTATION.** (3)
he study and transcription of the notation of Renaissance polyphony from the time of the Burgundian school through Palestrina and contemporaries, and of the various keyboard and lute tablatures of the 16th and 17th centuries. Lecture, three hours; laboratory, one hour. Prereq: Consent of instructor.

**MUS 702 SEMINAR IN MUSICOLOGY.** (3)
Study and research in specific musicological problems. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

**MUS 704 MUSIC TECHNOLOGIES.** (3)
An introduction to the principles of musical sound combined with an introduction to synthesizers and computer applications in music. Prereq: Graduate standing in music.

**MUS 705 RESEARCH II.** (3)
A course designed to lead the student in music education to do experimental research in the area of music education. Prereq: MUS 600.

**MUS 706 MUSIC LEARNING AND BEHAVIOR.** (3)
This course is intended for graduate students in music education with the major focus of the class involved in learning behavioral principles, learning observational categories pertaining to classroom reinforcement and role playing and practicing techniques to be employed later in the classroom. Prereq: Graduate standing in music.

**MUS 707 TESTS AND MEASUREMENTS IN MUSIC.** (3)
This course is designed to provide students with knowledge in measurements and evaluation in the field of music education and research. Topics include principles of measurement, administration and evaluation of published standardized and teacher-made tests, interpretation of test results, and test construction. Prereq: MUS 600.

**†MUS 718 DOCTORAL SEMINAR.**

**MUS 719 INDEPENDENT WORK IN MUSICOLOGY.** (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of graduate credit in the area of specialization and consent of instructor.

**MUS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

# - New course  * - Course change  † - Course dropped

**MUS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**MUS 750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC.** (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures.

**MUS 762 MUSIC IN HIGHER EDUCATION.** (3)
Historical and comparative studies in the teaching and administration of music in colleges and universities. Includes case studies in administration, music in European higher education and the relationship of music to all other elements of the academic program. Prereq: MUS 751.

**MUS 766 SEMINAR IN MUSIC EDUCATION.** (3)
Advanced professional study in the theory and practice of music education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**MUS 767 INDEPENDENT WORK IN MUSIC EDUCATION.** (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of graduate credit in area of specialization and consent of instructor.

**MUS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**MUS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**MUS 770 PSYCHOLOGY OF MUSIC.** (3)
A study of the processes of musical thinking and the effects of music on human behavior.

**MUS 772 SEMINAR IN THEORY.** (3)
Individual and group study of theoretical problems and areas of inquiry. May be repeated to a maximum of nine credits. Prereq: Graduate standing in Theory, or consent of instructor.

**MUS 780 DIRECTED RESEARCH IN VOCAL LITERATURE.** (1-3)
Individual directed research. Elective course for master's degree students. Required for doctoral voice majors; topics assigned at discretion of instructor in proportion to credits undertaken. May be repeated to a maximum of 12 credits. Prereq: MUS 618 and MUS 620 or permission of instructor.

**MUS 799 INDEPENDENT WORK IN MUSIC THEORY.** (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of credit in area of specialization and consent of instructor.

## NFS Nutrition and Food Science

**NFS 101 FOOD AND NUTRITION FOR MAN.** (3)
Food composition, preservation, digestion, absorption and metabolism as related to selection of nutrients essential for human life, health, growth, reproduction, lactation and physical activity. Not open to NFS majors except restaurant management students.

**†NFS 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT.**

**NFS 204 PRINCIPLES OF FOOD PREPARATION.** (3)
Basic physical and chemical principles involved in preparation of foods in the Basic Four food groups. Skills, sanitation standards, and economics involved in preparation of foods of quality and maximum nutrient content. Lecture, one hour; laboratory, four hours.

**NFS 212 INTRODUCTORY NUTRITION.** (3)
An elementary study of the principles of nutrition and the application of these principles to providing adequate nutrition to humans. The chemical and physiological approach to nutrition is emphasized. Credit may not be earned for both NFS 101 and 212. Prereq: BIO 104; CHE 106 or 107. May be taken concurrently.

**NFS 240 NUTRITION AND PHYSICAL FITNESS.** (3)
Course focuses on the interrelationship between nutrition and physical fitness. The intent is to provide the student with the information necessary to formulate an individualized plan for the achievement and maintenance of adequate nutrition and physical fitness. Weight control will be discussed in this content. Team-taught by nutrition faculty and health, physical education and recreation faculty. Lecture, two hours; laboratory, two hours. (Same as HPR 240.)

**NFS 301 INTRODUCTION TO THE DIETETICS PROFESSION.** (3)
An orientation to the dietetics profession, including ethics, education requirements, roles and responsibilities in various employment opportunities. Basic skills needed by the dietician are reviewed, with emphasis on communications, nutritional care, medical terminology and food service management. Lecture, two hours; laboratory, two hours per week.

**NFS 304 EXPERIMENTAL FOODS.** (3)
Chemical and physical properties of food and the changes resulting from processing and preparation. Experimental study of variations in ingredients and preparation methods on food quality. Design, execute and report an independent research project. Lecture, one hour; laboratory discussion, one hour; laboratory, three hours per week. Prereq: NFS 204 and CHE 236.

**NFS 311 NUTRITIONAL BIOCHEMISTRY.** (3)
An introductory study of the biochemical basis of nutrition—the physiochemical properties of nutrients and other essential biochemicals and their role in physiological and metabolic processes. Prereq: CHE 236 or NFS 310; PGY 206 may be taken concurrently or consent of instructor.

**NFS 312 NUTRITION IN THE LIFE CYCLE.** (2)
A study of the physiological changes occurring in the life cycle with associated nutrient needs. The course focuses on nutrient needs in pregnancy through the life span to geriatrics. Prereq: NFS 212.

**NFS 314 DIETETICS: COUNSELING AND COMMUNICATION.** (2)
Development of competency in collection and interpretation and food/diet related data. Strategies and techniques for promoting change in nutrition behaviors will be included. Laboratory, four hours per week. Prereq: NFS 212.

**NFS 340 INSTITUTIONAL PURCHASING.** (3)
Fundamental principles and purchasing techniques for the selection of food and nonfood items in a food service system. Prereq: ECO 201 or 202.

**NFS 342 QUANTITY FOOD PRODUCTION.** (5)
Introduction to the production and service of food in quantity includes production techniques and controls, safety and sanitation, menu planning and service. Lecture, three hours; laboratory, 4.5 hours. Prereq: NFS 204.

**NFS 344 FOOD SERVICE ACCOUNTING.** (3)
Application of accounting principles to food service in the cafeteria, lunchroom, tea-room, restaurant, residence hall, hospital and other institutions. Lecture, one hour; laboratory, four hours. Prereq: NFS 340; ECO 201 or ECO 202.

**NFS 346 BASIC MANAGEMENT PRINCIPLES OF FOOD SERVICE.** (3)
An introduction to the principles, theories, and functions of management as related to food service. Major emphasis of the course is utilization of human resources. Prereq: NFS 342 or consent of instructor.

**NFS 408G SEMINAR IN FOOD AND NUTRITION.** (1)
Investigation of recent research in food and nutrition. May be repeated to a maximum of three credits. Nutritional sciences graduate students may not enroll for graduate credit. Prereq: Senior standing or consent of instructor.

**NFS 503 COMMUNITY NUTRITION.** (3)
A study in assessing community nutrition program needs, program implementation, and evaluation. Course content focuses on community nutrition education programs in health clinics, wellness centers, schools, government institutions, voluntary agencies, mass media, etc. Prereq: NFS 312.

**NFS 510 ADVANCED NUTRITION.** (3)
Application of biochemistry, physiology and nutrition to the understanding of the utilization and function of nutrients in the body as related to the structure, function and metabolic needs of cells/organ systems. Dietetic students must take NFS 511 concurrently with NFS 510. Prereq: NFS 311 or BCH 401G or equivalent.

**NFS 511 THERAPEUTIC NUTRITION.** (3)
Changes in nutrient metabolism related to biochemical and physiological alterations in disease conditions and development of therapeutic diets. Prereq: NFS 311, NFS 312, and concurrent enrollment in NFS 510.

**NFS 513 ADVANCED THERAPEUTIC NUTRITION.** (2)
Study of selected topics in advanced therapeutic nutrition, including trauma, enteral and total parenteral nutrition. Content includes case study evaluations, nutritional therapies for disease conditions and current reports/research in the field. Prereq: NFS 511.

**NFS 516 MATERNAL AND CHILD NUTRITION.** (3)
Food selection for optimal nutrition during pregnancy and lactation and for infant and child development through preadolescence. Cultural, social, and psychological aspects of food selection and dietary patterns, as they relate to mental and physical development. Prereq: NFS 312 or consent of instructor.

**NFS 542 FOOD SERVICE EQUIPMENT AND LAYOUT.** (3)
Layout and design of efficient food service facilities in restaurants, hotels, and institutions; selection, operation and maintenance of equipment. Field trips. Lecture, two hours; laboratory, two hours per week. Prereq: NFS 342.

**NFS 546 INSTITUTION ORGANIZATION AND MANAGEMENT.** (3)
Principles of institution organization, types of institution service, personnel and financial management. Legal aspects of institution management. Personal and professional qualifications of an institution manager. Prereq: NFS 340, 342, 346 or equivalent.

**NFS 548 INSTITUTION ADMINISTRATION.** (3)
Application of scientific principles are developed in various aspects of food service management. May be repeated to a maximum of nine credits. Prereq: NFS 344, NFS 546 or consent of instructor.

**NFS 580 DIETETICS PRE-PROFESSIONAL PRACTICE.** (1-6)
Pre-professional experiences are designed to allow students to apply knowledge and skills in assessing, planning, implementing, and evaluating nutrition care in various health delivery systems. Student experience will include opportunities to link theory and practice while developing the skills and attitudes essential to practice in the dietetics profession. Placement of experiential settings must have the approval of the appropriate Director of Dietetics in Nutrition and Food Science. A minimum of 60 supervised practice hours will constitute one semester credit hour with prior approval. (NFS students may not receive graduate credits toward a degree for practicum experiences.) May be repeated to a maximum of six credits. Prereq: Consent of instructor and senior or graduate status.

**NFS 590 FIELD WORK IN NUTRITION.** (1)
Nutrition problems at different age levels, correlated with surveys and experimental studies to show the relation between diet selection and its physical and mental effects. Lecture and laboratory. May be repeated to a maximum of four credits. Prereq: NFS 503, or consent of instructor.

**NFS 591 SPECIAL PROBLEMS IN FOODS AND NUTRITION.** (1-3)
Intensive work on a specific phase of the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**NFS 594 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT.** (1-3)
Intensive work on specific problems. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**NFS 603 ADVANCED COMMUNITY NUTRITION.** (3)
Study of nutrition surveys and of bases for judging community nutrition. Emphasis is placed upon economic, geographic, social and educational causes of malnutrition. Experience is given in development of nutrition programs. May be repeated to a maximum of six credits. Prereq: NFS 503.

**NFS 610 HUMAN NUTRITION: ASSESSMENT.** (3)
Assessment of dietary, anthropometric and biochemical parameters of nutritional status in health and disease. Lecture, two hours; laboratory, three hours per week. Prereq: NFS 510, NFS 511 or equivalent.

**NFS 680 NUTRITION AND AGING.** (2)
Emphasis on current research in nutrition and aging, nutrition needs of the elderly and nutrition-related diseases associated with aging. Prereq: NFS 510 and 511 or equivalent.

**NFS 685 MINERAL METABOLISM.** (2)
An in-depth review of the function, requirement deficiency and toxicity of mineral elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent. BCH 502 or equivalent or consent of instructor. (Same as ASC 685.)

**NFS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**NFS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**NFS 770 SEMINAR IN NUTRITION AND FOOD SCIENCE.** (1)
Selected topics in nutrition and/or food science. May be repeated to a maximum of three credits.

**NFS 772 CURRENT TOPICS IN HUMAN NUTRITION AND FOOD SCIENCE.** (2)
A study of topics in vitamins, minerals, proteins, carbohydrates and lipids as they relate to human nutrition and food science. Current symposia and reviews in human foods, nutrients, digestion, absorption, metabolism and excretion will be discussed. May be repeated to a maximum of six credits. Prereq: NFS 771 and one year graduate standing or permission of instructor.

**NFS 781 SPECIAL PROBLEMS IN FOODS AND NUTRITION.** (1-3)
Independent advanced work on a specific problem. May be repeated to a maximum of six credits.

**NFS 784 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT.** (1-3)
Independent, advanced work. May be repeated to a maximum of six credits.

**NFS 800 NUTRITION IN THE LIFE CYCLE: PRACTICUM.** (1)
Course content will provide an introductory supervised practice for Coordinated Program dietetic students. Experiences include nutrition services provided at various stages in the life cycle, including pregnancy, infancy, preschool, elementary and high school, and geriatric. Laboratory, three hours per week. Prereq: Admission to Coordinated Program, NFS 212, CHE 236; concur: enrollment in NFS 312.

**NFS 808 COMMUNITY NUTRITION: PRACTICUM.** (2)
Supervised practice in community nutrition. Experiences include public and private agencies/organizations that provide food and nutrition services and nutrition education for various socioeconomic groups. Laboratory, six hours per week. Prereq: Admission to Coordinated Program; concur: enrollment in NFS 503.

**NFS 810 THERAPEUTIC NUTRITION: PRACTICUM.** (3)
Supervised practice in health care facilities. Course focuses on patient assessment, diet planning, care plan implementation, and nutritional evaluation. Laboratory, nine hours per week. Prereq: Admission to Coordinated Program; concur: enrollment in NFS 513.

**NFS 812 FOOD SERVICE SYSTEMS: PRACTICUM.** (3)
Supervised practice in food service management in a variety of food service operations. Experience may include participation in management functions including procurement, production, financial and human resource management, marketing, and training. Laboratory, nine hours per week. Prereq: Admission to Coordinated Program; concur: enrollment in NFS 346.

**NFS 814 ADVANCED FOOD SERVICE SYSTEMS PRACTICUM.** (5)
In-depth application of food service management principles in a food service operation. Provides variety of experiences in operations, financial, and managerial aspects of food services. Experiences based on performance requirements established by the American Dietetic Association for the entry level generalist dietitian. Clinical, 15 hours per week. Prereq: Admission to Coordinated Program and NFS 813; concur: NFS 816, NFS 818.

**NFS 816 ADVANCED THERAPEUTIC NUTRITION PRACTICUM.** (5)
In-depth clinical application of the principles of dietetics in a hospital setting. Focuses on the team concept of patient care. Provides a variety of dietetic practice experiences with opportunity to test and evaluate results. Experiences based on performance requirements established by the American Dietetics Association for the entry level generalist dietitian. Clinical, 15 hours per week. Prereq: Admission to Coordinated Program and NFS 811; concur: NFS 814, NFS 818.

**NFS 818 EVALUATION OF DIETETIC PRACTICES.** (2)
Evaluation of supervised practices in dietetics. Includes the development of attitudes and values for the professional dietitian. Formal presentations of case studies developed during supervised practices in the field. Presentation and discussion of current journal literature related to professional practice. Lecture, one hour; clinical, three hours per week. Prereq: Admission to Coordinated Program; concur: NFS 814, NFS 816.

## NRC Natural Resource Conservation and Management

**#NRC 301 RESOURCE MANAGEMENT AND CONSERVATION.** (3)
An intermediate course in management and conservation of natural resources, with an emphasis on terrestrial resources. A case study approach will be used to study current natural resource issues. Prereq: FOR 100.

**#NRC 320 DATA COLLECTION TECHNIQUE.** (3)
A field-oriented course taught as a three week summer camp at the Robinson Forest. Emphasis is placed on methodologies for data collection necessary to evaluate a variety of ecosystems on forest land, agricultural land and surface mined land. Students will become familiar with sampling instrumentation, collection, preservation, analysis and data interpretation. Lecture, 10 hours; laboratory, 30 hours per week for three weeks. Prereq: BIO 150, 151, 152, 153; CHE 105.

**#NRC 350 SOCIAL IMPACT ASSESSMENT.** (3)
Applications of social impact assessment methods in context of natural resource conservation and management and environmental policy. Methods to assess economic, demographic, service, fiscal, and social impacts. Prereq: FOR 100, SOC 260, consent of instructor.

**#NRC 385 SEMINAR IN NATURAL RESOURCE CONSERVATION AND MANAGEMENT.** (1)
Reports and discussions of selected topics in natural resource conservation and management. Students will select topics for independent investigation and class presentations. Prereq: NRC 301.

**#NRC 395 SPECIAL PROBLEMS IN NATURAL RESOURCES.** (1-6)
Study and independent work on selected problems related to conservation and management of natural resources. May be repeated to a maximum of six credits. Studio, 2-12 hours per week. Prereq: Consent of appropriate instructor.

**#NRC 399 EXPERIENTIAL EDUCATION IN NATURAL RESOURCES.** (1-6)
A field-based learning experience in natural resources under the supervision of a faculty member. May be repeated to a maximum of six credits. Studio, 2-12 hours per week. Prereq: Consent of instructor and department chair, and completion of a developmental learning contract.

**#NRC 450G BIOGEOCHEMISTRY.** (3)
A course emphasizing the physical, chemical, and biochemical make-up of soil/water systems and the information required to predict chemical fate in the environment. Emphasis is placed on the relationships describing mineral solubility, sorption and exchange reactions, redox reactions, volatility, and biochemical cycling. Prereq: CHE 105, 107, 115; two semesters of college biology. (Same as AGR 450G.)

**#NRC 471 SENIOR PROBLEM IN NATURAL RESOURCES.** (3)
This course is designed to provide students with the opportunity to apply the skills and information acquired in previous courses to a real world natural resource problem. The class will focus on a single current natural resource conflict in Kentucky and will research the issue in depth, using a variety of techniques, including library research, interviews, and data collection and analysis. In addition to research and problem-solving skills, written and oral skills will be emphasized. Lecture, one hour; laboratory, four hours per week. Prereq: NRC 301, NRC 385, and senior standing.

## NS Nutritional Sciences

**NS 651 TOPICS IN NUTRITIONAL SCIENCES I.** (2)
Faculty from different disciplines will provide in-depth coverage of selected topics in nutritional sciences as related to health and disease, e.g. nutrition and gastrointestinal diseases, diabetes, cancer, cardiovascular disease. Prereq or concur: Six credit hours from ASC 681, 683, 687, ASC/NFS 685, NFS 610, CNU 601 or consent of instructor.

**NS 652 TOPICS IN NUTRITIONAL SCIENCES II.** (2)
Faculty from different disciplines will provide in-depth coverage of selected topics in nutritional sciences as related to health and biological functions (e.g. nutrition and exercise, stress, and environmental interactions). Prereq or concur: Six credit hours from ASC 681, 683, 687. ASC/NFS 685, NFS 610, CNU 601 or consent of instructor.

**NS 680 LABORATORY METHODS IN NUTRITIONAL SCIENCES.** (4)
The use of laboratory techniques and instrumentation in the solution of fundamental problems of nutrition. Lecture, one hour; laboratory, six hours. (Same as ASC 680.)

**NS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**NS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**NS 771 GRADUATE SEMINAR IN NUTRITIONAL SCIENCES.** (0-1)
Reports and discussion on recent research and current literature in nutritional sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing and consent of instructor for non-NS students enrolled for one credit.

**NS 790 RESEARCH IN NUTRITIONAL SCIENCES.** (0-6)
Research work involving original investigation. May be repeated to a maximum of 18 credits. Prereq: Consent of graduate advisor.

## NUR Nursing

**NUR 440 WOMEN AND MENTAL HEALTH.** (3)
An examination of historical and current factors affecting women's mental health across the life span. Emphasis is placed on identification of hidden biases; treatment and social control issues; and policy implications. Selected mental health problems are examined in-depth. (Same as HSE 440.)

**NUR 510 OLDER WOMEN AND THEIR HEALTH.** (3)
This course is designed to increase the awareness and understanding of the relationships among gender, health status and the aging process among older women. Such issues as changing social and cultural mores, public policies and utilization of health care resources are discussed as they impact women. Prereq: Upper division or graduate standing. (Same as HSE 510.)

**NUR 520 SPECIAL TOPICS IN NURSING (Subtitle required).** (2-4)
Exploration of selected topics or issues in nursing. Directed by a faculty member with expertise in the topic under study. Lecture, 0-4 hours; laboratory, 0-12 hours per week. May be repeated with different topics to a maximum of nine credits. Prereq: Variable, specified when topic identified.

***NUR 600 ADVANCED NURSING PRACTICE: ROLES AND ISSUES.** (3)
This course provides an opportunity for students to explore theory, concepts, and research related to advanced practice roles and functions; and examine historical and contemporary problems and issues from local, state, regional and national perspectives. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 610 CONCEPTS AND THEORIES IN NURSING.** (2)
Study of formulation of concepts and theories in nursing and the testing of existing theories in clinical practice. Prereq: Admission to graduate program in nursing.

**NUR 612 NURSING RESEARCH METHODS.** (3)
Provides for the development of skills needed to understand and evaluate nursing research, to identify problems in nursing which may be studied, and to formulate a study proposal. Prereq: Admission to graduate program in nursing.

**NUR 613 RESEARCH APPLICATIONS IN NURSING.** (3)
This course provides an opportunity for application of selected aspects of the research process to a clinical nursing problem. Students work individually or in small groups. The specific nature of the research effort is negotiated with the faculty advisor and is under the direction of that advisor. A written scholarly report is the final product. May be repeated to a maximum of six credits. Prereq: NUR 612.

**NUR 614 PRACTICUM IN CLINICAL NURSING I.** (4)
Conceptual frameworks, theories, and research findings are applied in clinical practice. The testing of theoretical concepts related to nursing management of clients in an area of clinical concentration is emphasized. Collaborative practice with other disciplines is an expectation. Prereq: Kentucky licensure and relevant post-baccalaureate experience, NUR 610; prereq or coreq: NUR 700, 710, 715 or 720.)

**NUR 615 PRACTICUM IN CLINICAL NURSING II.** (5)
Advanced knowledge, research, leadership, and clinical skills are integrated in managing nursing care with individuals, families, and groups or communities. Evaluation strategies to promote change and resolve problems in nursing care delivery are analyzed. Multidisciplinary strategies to promote and resolve problems in health care delivery are emphasized. Prereq: NUR 614, 701, 711, 716, 717 or 720.

**NUR 619 TEACHING IN NURSING.** (3)
Introduction to basic concepts and skills required to teach nursing in associate degree or baccalaureate nursing programs. This is a course on purposes and processes for writing objectives in nursing, teaching nursing in the classroom and in clinical areas, test item construction, and evaluation of clinical performance. Some attention is given to overall faculty responsibilities and to time management. Prereq: Enrollment in graduate program in nursing.

***NUR 620 PROBLEMS IN CLINICAL NURSING.** (2-6)
This course provides opportunity for the study of nursing problems in particular clinical areas and for the further development of techniques of nursing intervention. Ratio of discussion/laboratory hours will vary according to designated clinical problems. May be repeated to a maximum of 12 credits. Prereq: Admission in graduate program in nursing or consent of instructor.

**NUR 623 PRACTICUM IN CLINICAL NURSING INSTRUCTION.** (3)
Under faculty guidance, students will have practice in the teaching of nursing in settings appropriate to their career goals. Prereq: NUR 619.

***NUR 628 POPULATION FOCUSED PRACTICE IN THE COMMUNITY.** (2)
An examination of historical and contemporary public health problems from a population focused approach. Analysis of concepts, theories from public health and community health nursing will be emphasized. Prereq: Admission to graduate program in nursing or consent of instructor.

***NUR 650 ADVANCED PHYSICAL AND HEALTH ASSESSMENT.** (2-4)
A variable credit lecture and laboratory course on the principles and techniques of obtaining a comprehensive health assessment in the context of psychological and physiological developmental parameters. Emphasis is on differentiating between normal and abnormal findings in children, young and middle adults, and the elderly. The pathophysiology of each body system is included for greater distinction between the normal and abnormal. Lecture, one to two hours; laboratory, 3 to 12 hours per week. Prereq: Admission to graduate program in nursing or consent of instructor.

***NUR 651 DIAGNOSTIC LABORATORY PROCEDURES.** (2)
This course provides an overview of common laboratory procedures utilized in the primary care setting. Theory and practice in the principles and techniques of performing selected procedures. Lecture, one hour; laboratory, three hours per week. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 654 COMMON HEALTH PROBLEMS OF YOUNG, MIDDLE, AND OLDER ADULTS I.** (3)
Focus is on the primary care nurse practitioner's role in the recognition and management of selected acute, chronic, and emergent health problems related to the basic human needs of the young, middle and older adult commonly encountered in ambulatory care, home health, and nursing home facilities. Problems related to elimination, eye, skin, sight, psychosocial needs, endocrine, cardiovascular, respiratory, and female reproductive systems are presented. Emphasis is on the role of the nurse practitioner as a collaborative member of the health care team. Prereq: NUR 650.

**NUR 655 COMMON HEALTH PROBLEMS OF YOUNG, MIDDLE, AND OLDER ADULTS II.** (3)
This is a sequential course to NUR 654 in which there is discussion of additional selected acute, chronic, and emergent health problems related to the basic human needs of adults of all ages managed by the nurse practitioner in ambulatory care settings, home health agencies and nursing home facilities. Emphasis is on analysis of the role of the nurse practitioner as a collaborative member of the health care team. Problems related to minor emergencies, abuse, family planning, pregnancy, hemotologic, gastrointestinal, male genitourinary, and neurologic systems are discussed. Prereq: NUR 650.

**NUR 656 HEALTH PROBLEMS OF THE PEDIATRIC CLIENT.** (2)
Focus is on the primary care nurse practitioner's role in the recognition and management of selected acute, chronic and emergent health problems related to the basic human needs of the pediatric client from birth through adolescence commonly encountered in ambulatory care, home health, and nursing home facilities. Emphasis is on the role of the nurse practitioner as a collaborative member of the health team and as a supportive resource for parents. Prereq: NUR 650.

**#NUR 657 HEALTH ISSUES OF THE CHILD AND ADOLESCENT CLIENT.** (2)
The focus is on helping the primary pediatric practitioner assess and manage acute, chronic, developmental, and behavioral health problems of the child and adolescent in primary care. Emphasis is on identification of appropriate assessment and management of problems in collaboration with other health care providers and the use of the nurse practitioner as a resource for families. Prereq: NUR 656.

**NUR 662 CLINICAL NURSING PRACTICE IN EXPANDED ROLES I.** (1-4)
Clinical practicum focusing on assessment of health status of individuals, families, and/or aggregates; identification of needs and planning for care with emphasis on prevention and health maintenance. Laboratory, three to 12 hours per week. May be repeated to a maximum of four credits. Prereq: Kentucky licensure and relevant post-baccalaureate experience; NUR 654; prereq or coreq: NUR 740 or NUR 741.

**NUR 663 MANAGEMENT OF CLINICAL NURSING PRACTICE I.** (4)
Clinical practicum with a management preceptor for the purposes of assessing health care needs of aggregates, designing programs to meet the identified needs, and planning for change. Prereq: Kentucky licensure and relevant post-baccalaureate experience; NUR 730.

**#NUR 668 PSYCHOTHERAPEUTICS FOR ADVANCED NURSING PRACTICE.** (3)
This course provides advanced background in psychotherapeutics for psychiatric/mental health nurse practitioners. Psychiatric disorders and their pharmacotherapy are addressed with emphasis on indications for use, mechanisms of action, side effects, pharmacokinetics and nursing management problems. Prereq: Graduate standing in nursing or permission of instructor. (Same as PHR 668.)

**NUR 672 CLINICAL NURSING PRACTICE IN EXPANDED ROLES II.** (3-4)
Second clinical practicum which focuses on continued assessment of health needs of individuals, families, and/or aggregates which emphasizes planning, implementation, monitoring, and evaluation of nursing services. Laboratory, nine to 12 hours per week. Prereq or coreq: NUR 655; 662; 742 or 744.

**NUR 673 MANAGEMENT OF CLINICAL NURSING PRACTICE II.** (4)
In this clinical practicum students will be assigned to a preceptor for the purpose of applying the theoretical content from NUR 731. Students will focus on implementation and monitoring of nursing services and evaluation of the effectiveness of programs in meeting the needs of the population served through the health care agency. Laboratory, 12 hours per week. Prereq: NUR 663; prereq or coreq: NUR 731.

**NUR 682 CLINICAL NURSING PRACTICE IN EXPANDED ROLES III.** (3-8)
Individually arranged in-depth clinical practicum focusing on the development of leadership and clinical management skills and the application, refining, and synthesis of knowledge and skills developed in didactic and clinical courses. May be repeated to a maximum of eight credits. Laboratory, nine to 24 hours per week. Prereq or coreq: NUR 672; coreq: NUR 743, 744, or 745.

**NUR 683 MANAGEMENT OF CLINICAL NURSING PRACTICE III.** (3-8)
Individually arranged in-depth study and practice in executive level nursing management in a health setting for the purpose of synthesizing the knowledge and skills developed through didactic and clinical experiences. Laboratory, nine to 24 hours per week. Prereq: NUR 673.

**NUR 688 MEASUREMENT OF NURSING PHENOMENA.** (4)
This course builds on the conceptual, philosophical, and methodological foundations of NUR 790, 791, and 792. Measurement issues in developing, testing, and applying middle range theory(ies) in nursing practice are discussed. The psychometric purposes of instruments and assessment methods appropriate to the theoretical and conceptual demands of selected frameworks are evaluated. Students plan, implement, and report the results of pilot research related to the dissertation area. Lecture, two hours; laboratory, two hours per week. Prereq: NUR 790, 791, 792.

***NUR 700 BEHAVIORAL RESPONSES TO HEALTH PROBLEMS.** (2)
This course focuses on the concepts and theories that assist in understanding behavioral responses to health problems. Although the focus will be on adults, these concepts and theories may be applied across age groups or clinically defined populations. Of specific interest are human responses influenced by cognitive processing of information related to health, health problems, and health service utilization. Approaches to nursing diagnosis and intervention to support and/or modify these responses to health problems are emphasized within the context of clinical decision-making. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 701 BIOLOGICAL RESPONSES TO HEALTH PROBLEMS.** (2)
This course focuses on concepts and theories that assist in the understanding of biological responses of adults to health problems. The course draws on previous knowledge of physiology and pathophysiology and the ability of participants to integrate behavioral and biological phenomena. Approaches to nursing diagnosis and intervention to support and/or modify these responses to health problems are emphasized within the context of clinical decision-making. Prereq: NUR 700.

**NUR 710 ADVANCED PARENT-CHILD NURSING I.** (2)
This seminar focuses on biopsychosocial concepts and theories related to the nursing care of children, adolescents, and their families. Students are expected to become familiar with research findings and literature applicable to parent-child nursing. Coreq: NUR 614.

**NUR 711 ADVANCED PARENT-CHILD NURSING II.** (2)
This seminar focuses upon application of theories, concepts, and research related to clinical decision-making in parent-child nursing. Prereq: NUR 710, NUR 614.

***NUR 715 PERINATAL NURSING: LOW RISK FAMILIES.** (2)
This seminar will focus on diagnosing and treating the biopsychosocial responses of families to the child bearing continuum. Concepts, theories, and research related to low risk mother and infant will be emphasized. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 716 PERINATAL NURSING: HIGH RISK MOTHER.** (2)
The physiological, psychological, sociological, and behavioral responses of the high risk mother and family to interruptions during the normal maternity cycle will be explored. Emphasis will be on nursing assessment, diagnosis, interventions and evaluation appropriate to the maternal-fetal responses. Ambulatory and inpatient aspects of care will be investigated. Prereq: NUR 715.

**NUR 717 PERINATAL NURSING: HIGH RISK NEONATE.** (2)
The physiological and behavioral responses of the high risk neonate to interruptions in normal fetal development and transition to extrauterine life will be explored. The psychological and social responses of parents will be examined. Emphasis will be on nursing interventions appropriate to the responses. Prereq: NUR 715.

**NUR 720 ADVANCED PSYCHIATRIC/MENTAL HEALTH NURSING I.** (2)
Focus is on concepts, theories and research underlying psychiatric/mental health nursing practice. Definitions of mental health and illness, classification models and problems of clinical decision making are explored. Psychological, social and cultural influences on individual coping responses are examined and individual intervention models are introduced. Coreq: NUR 614.

**NUR 721 ADVANCED PSYCHIATRIC/MENTAL HEALTH NURSING II.** (2)
Major mental health problems affecting individuals, families and communities are studied, and related nursing research problems are identified. Group theory, process and practice models are introduced. Prereq: NUR 720; coreq: NUR 615.

***NUR 730 NURSING MANAGEMENT IN THE ORGANIZATION I.** (3)
The focus of this course will be on strategies for the assessment of health care needs of patient client groups and the development of programs to respond to those needs. Emphasis will be placed on the use of concepts and principles from epidemiology, health planning, clinical nursing science, and management in identifying and generating relevant assessment data and in designing nursing program. Human resource management for program implementation will be emphasized. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 731 NURSING MANAGEMENT IN THE ORGANIZATION II.** (3)
This course focuses on strategies for monitoring delivery of care to populations and for evaluating program effectiveness. Issues involved in decision-making related to continuing, altering, or discontinuing services will be considered from a variety of perspectives including organizational theory, change theory, and political dynamics in the community. Emphasis will be placed on the use of systematic strategies in assessing the quality of care and in monitoring the performance and productivity of staff. Attention will be given to budgeting issues, particularly clinically meaningful approaches to deriving costs of nursing services. Prereq: NUR 663.

***NUR 735 FAMILY AND COMMUNITY HEALTH PROMOTION.** (3)
Focus is on concepts, theories, and techniques for assessing families and communities and assisting individuals, families, and groups to maximize their health status. The evaluation of community resources to meet health care needs is emphasized. Research related to the influence of lifestyle, health habits, and coping with developmental and situational crises on health is reviewed. Selected field of observational experiences are included. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 740 NURSE-MIDWIFERY MANAGEMENT: NEONATE.** (2)
A study of theories, concepts, and research related to the neonate with emphasis on adaptation to extrauterine life and stabilization of the newborn, parameters and methods of assessment, variations in normal, deviations from normal, and physical and emotional needs of the neonate. Focus will be on the theoretical aspects of the nurse-midwifery management of the care for the neonate. Prereq: Enrollment in the Nurse-Midwifery Component.

**NUR 741 NURSE-MIDWIFERY MANAGEMENT: WELL WOMAN.** (2)
A study of theories, concepts, and research related to well woman health care with emphasis on reproductive health maintenance, sexuality, family planning, variations in normal, deviations from normal, sexual dysfunction, infertility, and unplanned pregnancy. Focus will be on the theoretical aspects of the nurse-midwifery management of care for healthy women throughout the life span. Prereq: Enrollment in the Nurse-Midwifery Component; prereq or coreq: AHE 670 or equivalent.

**NUR 742 NURSE-MIDWIFERY MANAGEMENT: ANTEPARTAL WOMAN.** (2)
A study of theories, concepts, and research related to the antepartal phase of the maternity cycle. Emphasis will be on the normal pregnant woman, common variations in normal, deviations from normal, fetal development, and enhancement of the pregnant family's childbearing experience through utilization of the teaching-learning theory and principles of anticipatory guidance. Focus will be on the theoretical aspects of the nurse-midwifery management in the care of the pregnant family during the antepartal phase of the maternity cycle. Prereq: NUR 741; coreq: NUR 744.

**NUR 743 NURSE-MIDWIFERY MANAGEMENT: INTRAPARTAL & POSTPARTAL WOMAN.** (2)
A study of theories, concepts, and research related to the intrapartal and postpartal phases of the maternity cycle. Emphasis will be on the normal aspects during labor, birth, and the postpartum, common variations in normal, deviations from normal, fetal status during labor and the immediate period following birth, and enhancement of the pregnant family's childbirth experience. Focus will be on the theoretical aspects of nurse-midwifery management in the care of the pregnant family during the intrapartal phase and postpartal phase of the maternity cycle. Prereq: NUR 740; prereq or coreq: NUR 742 and NUR 744.

**NUR 744 NURSE-MIDWIFERY MANAGEMENT: WOMAN WITH PROBLEMS.** (2)
A study of theories, concepts, and research related to complications during the maternity cycle will be explored. Emphasis will be on common variations in normal, and deviations from normal. Focus will be on effects of the complications on the woman, fetus, pregnancy, labor, birth, and family, as well as the effects of pregnancy, labor, and fetus on the complications. The theoretical aspects of nurse-midwifery management will be stressed in relation to the care of women with complications during the maternity cycle. Coreq: NUR 742.

**NUR 745 NURSE-MIDWIFERY PRACTICE ORGANIZATIONS.** (2)
A study of strategies for the development of nurse-midwifery practice and its relationship within the health care delivery system. Emphasis will be on the historical development of nurse-midwifery practice; structure and function of the American College of Nurse-Midwives and its relationship to practice; interdisciplinary organizations as they pertain to the maternal child health care delivery system; the legal base for nurse-midwifery practice; and the use of organizational, behavioral, and management theories, concepts and principles to design, administer, and evaluate various nurse-midwifery practice alternatives. Prereq: NUR 743.

**NUR 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**NUR 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**NUR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**NUR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**NUR 778 PROSEMINAR IN CONTEMPORARY HEALTH AND NURSING POLICY ISSUES.** (3)
A critical analysis of the development of policy related to health and nursing is emphasized. Attention is focused on the formation of a policy strategy to address a major policy issue affecting health care and the discipline of nursing.

**NUR 779 DISSERTATION SEMINAR.** (1-3)
Review and critique of aspects of the dissertation for students beginning development of a dissertation proposal. May be repeated to a maximum of three credits. Prereq: Must have completed all research course requirements.

***NUR 781 INDEPENDENT STUDY IN NURSING.** (1-3)
An elective course which gives the student an opportunity to explore a topic of special interest. May be repeated to a maximum of eight credits. Prereq: Admission to graduate program in nursing or consent of instructor.

**NUR 790 THEORY DEVELOPMENT AND RESEARCH IN NURSING I.** (3)
This course focuses on the nature of nursing science and on approaches to the development of knowledge for use in nursing practice. Concepts and theories from philosophy of science and methods of theory development are used to critically examine the process of knowledge development in nursing. Emphasis is placed on the role of logical analysis and critical thinking in the development of theory for nursing practice. Prereq: Consent of instructor or enrollment in the doctoral program in nursing.

**NUR 791 THEORY DEVELOPMENT AND RESEARCH IN NURSING II.** (3)
Approaches to developing clinical nursing research using qualitative strategies will be the focus of this course. Prereq: NUR 790 or consent of instructor.

**NUR 792 THEORY DEVELOPMENT AND RESEARCH IN NURSING III.** (3)
Approaches to developing clinical nursing research to test clinical hypotheses using quantitative strategies will be the focus of this course. Prereq: NUR 791 or consent of instructor; STA 570 and STA 671 or the equivalents.

**NUR 800 ORIENTATION TO PROFESSIONAL NURSING.** (1)
Provides students with an introduction to nursing as a profession and to student life in the College of Nursing. Focuses on nursing as a unique discipline in a societal context and on the College of Nursing's organizational structure, philosophy, services and program of study. A beginning socialization into the profession of nursing and to the College of Nursing, providing students with opportunities to clarify their own ideas about and expectations of nursing as the career choice. Prereq: College of Nursing major or consent of instructor.

**NUR 821 PROFESSIONAL NURSING I.** (5)
This course is designed to introduce the baccalaureate student to cognitive, interpersonal, and psychomotor nursing skills. Attention will be given to the theoretical and clinical knowledge needed to make sound judgments and perform fundamental nursing activities for clients experiencing health problems with predictable outcomes. Lecture, three hours; laboratory, six hours per week. Prereq: Sophomore status in College of Nursing; coreq: ANA 206, NFS 212.

**NUR 823 PROFESSIONAL NURSING II.** (6)
This course builds and expands on the cognitive, interpersonal, and psychomotor nursing skills introduced in Professional Nursing I. Assessment and psychomotor skills will be integrated providing the student with additional theoretical and clinical knowledge in the performance of nursing activities for clients experiencing health problems with predictable outcomes. Lecture, four hours; laboratory, six hours per week. Prereq: Sophomore status, ANA 206, NUR 821; coreq: NUR 825, NUR 827.

**NUR 824 CLINICAL DECISION MAKING IN PROFESSIONAL NURSING I.** (6)
The focus of this course is methods for making clinical decisions. Emphasis will be on how to collect and utilize data in formulating judgments about patient states and in choosing nursing actions for patients with health problems with predictable outcomes. Lecture, four hours; laboratory, six hours per week. Prereq: Junior standing in the RN-BSN curriculum in the College of Nursing. Prereq or coreq: NUR 831 and NUR 833.

***NUR 825 BASIC PHYSIOLOGY FOR THE HEALTH SCIENCES.** (4)
Provides nursing students with the physiologic basis for nursing practice and an introduction to pathophysiology in preparation for their clinical experience. Prereq: ANA 206; sophomore standing. (Same as CLS 825.)

**NUR 826 CLINICAL DECISION MAKING IN PROFESSIONAL NURSING II.** (6)
This course emphasizes clinical decision making with clients, families or groups experiencing complex or multiple health problems with unpredictable outcomes. The emphasis is on interpreting and using complex patterns of data in making decisions about patient care. Lecture, four hours; laboratory, six hours per week. Prereq: NUR 824. Prereq or coreq: NUR 835, NUR 837.

**NUR 827 IMPLICATIONS OF DRUG THERAPY FOR NURSES.** (3)
The study of actions and reactions of medications frequently used as therapeutic agents. This course will provide information primarily about drug classifications and prototypical drugs in these classifications. Prereq: Sophomore status, NUR 821, ANA 206.

**NUR 831 BIOLOGICAL CONCEPTS: THREATS TO HUMAN HEALTH.** (2)
This course addresses biological concepts basic to nursing practice. Concepts essential for understanding major health problems which occur across the life span and that are encountered in multiple health care settings are discussed. Prereq: Junior year standing in the College of Nursing; coreq: NUR 832.

**NUR 832 NURSING CARE OF ADULTS.** (5)
This course provides theoretical and clinical learning experiences in the nursing care of adults. The nursing process is used to diagnose and manage human responses to predictable and, with assistance, unpredictable health problems. Focus will be on clinical decision making in providing nursing care for adults of all ages. Lecture, three hours; laboratory, six hours per week. Prereq: Junior standing in the College of Nursing; coreq: NUR 831.

**NUR 833 EPIDEMIOLOGIC CONCEPTS FOR HEALTH CARE.** (2)
This course is an introduction to epidemiologic concepts and interdisciplinary applications to health care of aggregates; structure of the community as it relates to access and utilization of available resources; structure of the health care system; levels of prevention; levels of care and economic factors affecting health. Field assignments will allow students to explore data sources. Prereq: Junior standing in the College of Nursing; coreq: STA 200.

**NUR 834 NURSING CARE OF CHILDREN.** (5)
This course provides theoretical and clinical learning experiences to promote competence in the professional nursing care of child-rearing families. The nursing process is used to identify and treat human responses to actual or potential health problems. The focus is on the development of critical thinking and clinical decision-making skills to reduce stress and promote adaptation of clients and their families. Lecture, three hours; laboratory, six hours per week. Prereq: Junior year standing in the College of Nursing; coreq: NUR 835.

**NUR 835 FAMILY HEALTH CONCEPTS.** (2)
This course provides theoretical perspectives on family functioning throughout the lifespan. The focus will be on the developmental stages of families as influenced by social, cultural, economic, and political forces. Family assessment, promotion of health in families, and resources for referral will be emphasized. Prereq: Junior year standing in the College of Nursing; coreq: NUR 834 and NUR 836.

**NUR 836 MATERNAL-NEONATAL NURSING.** (5)
This course provides theoretical and clinical learning experiences to promote competence in the professional nursing care of child-bearing families. The nursing process is used to facilitate adaptive responses of families to the experience of childbirth. The focus is on the development of critical thinking and clinical decision-making skills to reduce stress and promote health and well-being of clients and their families. Lecture, three hours; laboratory, six hours per week. Prereq: Junior year standing in the College of Nursing; coreq: NUR 835.

**NUR 837 MENTAL HEALTH CONCEPTS.** (2)
This course presents concepts which are foundational to psychiatric-mental health nursing and are fundamental to professional nursing practice. Prereq: Junior year standing in the College of Nursing; coreq: NUR 838.

**NUR 839 NURSING RESEARCH.** (3)
This course provides a theoretical and methodological basis for applying nursing research to clinical practice. Skills necessary for participating in the use of nursing research are addressed. Legal and ethical ramifications of research are discussed. Prereq: Junior year standing in the College of Nursing.

***NUR 840 PSYCHIATRIC-MENTAL HEALTH NURSING.** (5)
This course provides theoretical and clinical learning experiences in the psychiatric/mental health nursing care of clients (individuals, families, and groups). The focus is on complex psychiatric problems with unpredictable outcomes. Lecture, three hours per week; laboratory, six hours per week. Prereq: Senior standing in the College of Nursing.

**NUR 841 ISSUES IN NURSING.** (2)
This course involves a critical analysis of the emerging issues and problems affecting nursing and their impact on health care. The responsibilities of the individual practitioner and of the professional are emphasized. Prereq: Senior year standing in the College of Nursing or consent of the instructor.

**NUR 842 COMMUNITY HEALTH NURSING.** (6)
Concepts and skills of family and population-based nursing practice are applied using standards of Community Health Nursing. Health promotion and disease prevention are emphasized. Lecture, three hours; laboratory, nine hours per week. Prereq: Senior standing in the College of Nursing.

**#NUR 843 NURSING ETHICS.** (1)
A variety of vignettes/case studies will be used to enable students to use decision-making processes to explore viable options to ethical dilemmas confronted in nursing practice. Delineation of facts and principles involved in each case will be prepared by the student in advance of each class in order for them to select a particular stance which they will then be prepared to defend. Prereq: Senior standing in the College of Nursing.

**NUR 844 NURSING CARE OF ADULTS WITH COMPLEX HEALTH PROBLEMS.** (5)
This course integrates theoretical and clinical content through the use of the nursing process in the nursing care of ill adults. Emphasis will be placed on assessment, diagnosis, management, evaluation of human responses to unpredictable health problems with complex care requirements. Students will be responsible for addressing continuity of care between health care settings. Lecture, three hours; laboratory, six hours per week. Prereq: Senior year standing in the College of Nursing; coreq: NUR 846.

**NUR 846 LEADERSHIP/MANAGEMENT IN NURSING.** (5)
This course is designed for the student to demonstrate management and leadership skills as they relate to human and material resource management and clinical decision-making. Lecture, three hours; laboratory, six hours per week. Prereq: Senior standing in the College of Nursing; coreq: NUR 844.

**NUR 882 SPECIAL TOPICS IN NURSING.** (1-3)
Study and analysis of current and topical problems and issues in nursing. Directed by a faculty member with expertise in the topic under study. May be repeated to a maximum of 18 credits. Prereq: Admission to the College of Nursing.

**NUR 895 ELECTIVE STUDY IN NURSING.** (1-4)
An independent study project investigating an area of interest under the guidance of faculty. May encompass library study or patient care utilizing aspects of scientific approach. May be repeated to a maximum of four credits. Prereq: Approval of sponsoring instructor and the assistant dean.

## OR Operations Research

**OR 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS.** (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as MA/STA 515.)

**OR 524 PROBABILITY.** (3)
Sample space, random variables, distribution functions, conditional probability and independence, expectation, combinatorial analysis, generating functions, convergence of random variables, characteristic functions, laws of large numbers, central limit theorem and its applications. Prereq: MA 432G or 471G or consent of instructor. (Same as STA 524.)

**OR 525 INTRODUCTORY STATISTICAL INFERENCE.** (3)
Simple random sampling, statistics and their sampling distributions, sampling distributions for normal populations; concepts of loss and risk functions. Bayes and minimax inference procedures; point and interval estimation; hypothesis testing; introduction to nonparametric tests; regression and correlation. Prereq: STA 320 or STA 524 or STA 424G. (Same as STA 525.)

**OR 563 SIMULATION OF MINE PRODUCTION SYSTEMS.** (3)
Discrete event simulation and its application to performance analysis of mine production systems. Topics include concepts for characterizing production systems, approaches to structuring simulation models, instruction in a simulation language, and techniques for comparing alternative system designs and control strategies. Applications are made in modeling mine face operations, conveyor networks, and discrete vehicle transport systems. Prereq: CS 221, STA 381 and MNG 431. (Same as MNG 563.)

**OR 616 NUMERICAL TECHNIQUES FOR NONLINEAR OPTIMIZATION.** (3)
Unconstrained optimization, Kuhn-Tucker conditions for nonlinear programs (constrained optimization). Solutions procedures: methods of feasible directions, penality methods, approximation methods, the method of generalized Lagrangians. Discrete optimal control (dynamic formulation). Solutions methods for control problems: decomposition and structured problems. Prereq: MA 515 or consent of instructor. (Same as MA 616.)

**OR 617 MARKOVIAN DECISION PROBLEMS.** (3)
Control of discrete-time Markov processes by dynamic programming inventory theory. Computational approaches to control of Markov chains. State space methods: modeling of engineering and economic systems by linear stochastic difference equations. The discrete-time matrix Riccati equations, Kalman filtering. Optimal control of linear stochastic difference equations with complete or incomplete state information and with quadratic cost criterion. Prereq: STA 624. (Same as MA 617.)

**OR 618 COMBINATORICS AND NETWORK.** (3)
Graphs, networks, min flow-max cut theorem and applications; transportation problems, shortest route algorithms, critical path analysis, multicommodity networks, covering and packing problems; integer programming, branch-and-bounding techniques, cutting plane algorithms, computational complexity. Prereq: MA 515; can be taken concurrently with MA 515. (Same as MA 618.)

**OR 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH.** (3)
In this course the student is exposed to the art of applying the tools of operations research to "real world" problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as EE/STA/BA 619 and MA 613.)

**OR 624 APPLIED STOCHASTIC PROCESSES.** (3)
Definition and classification of stochastic processes, renewal theory and applications, Markov chains, continuous time Markov chains, queuing theory, epidemic processes, Gaussian processes. Prereq: STA 524 or consent of instructor. (Same as STA 624.)

**OR 674 HEURISTIC ALGORITHMS.** (3)
Advanced topics in algorithm design emphasizing the application of various heuristics. The course will treat active research topics. These topics include graph algorithms, parallel algorithms, randomization, linear and integer programming, VLSI and geometry problems. Prereq: CS 575 and CS 580. (Same as CS 674.)

## PA Public Administration

**PA 621 QUANTITATIVE METHODS OF RESEARCH.** (3)
A survey of behavioral science research methods for the public administrator. Emphasis is placed upon problem selection and identification, research design, and data analytic techniques. Prereq: MPA or MHA program status; prereq or concur: completion of MPA or MHA computer skills program requirement. (Same as HA 621.)

**PA 622 PUBLIC PROGRAM EVALUATION.** (3)
This course is designed to provide students with the conceptual and analytical tools to evaluate the effectiveness of public programs and policies. The focus will be on program monitoring and evaluation. Of particular concern will be program process and outcome measurement; quasi-experimental design; multiple regression analysis; and analysis of variance models. Prereq: PA 621.

**PA 623 DECISION ANALYSIS.** (3)
An introduction to organizational decision making under conditions of uncertainty, risk, and certainty. Concepts of analysis from the areas of economics, mathematics, and statistics will be utilized in terms of administrative decision making in public administration. Prereq: PA 621.

**PA 625 PUBLIC MANAGEMENT COMPUTER APPLICATIONS.** (3)
A general introduction to the computer, including an emphasis on usage of PL/I, specific and generic computer packages, design and implementation of large scale information systems, the concept of the database and public sector computer issues. Prereq: MPA program status or consent of instructor.

**PA 628 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR.** (3)
The course will present an overview of career development, human resource planning, staffing, training and development in the public sector. Prereq: MPA program status; consent of instructor.

**PA 631 PUBLIC FINANCIAL MANAGEMENT.** (3)
An analysis of budget structure and process; revenue structure and administration; and public capital acquisition and debt management. This course emphasizes an applied focus and comparative analysis of alternative budget, revenue, and debt management structures and strategies. Prereq: MPA program status; prereq or concur: completion of MPA or MHA computer skills program requirement.

**PA 632 PUBLIC FUNDS MANAGEMENT.** (3)
A study of the management of public funds including the accumulation, management and investment of such funds and the accounting for those transactions. It will also include topics such as fund accounting, cash forecasting, cash management practices and public funds investment strategies. Prereq: MPA or MHA program status; prereq or concur: completion of MPA or MHA computer skills program requirement. (Same as HA 632.)

**PA 636 HEALTH ECONOMICS.** (3)
This course applies general theoretical principles of economics to the health care sector. The basic approach is to recognize the importance of scarcity and incentives, allowing for differences peculiar to health. The demand and supply of health and medical care are examined as they involve physicians, nurses and hospitals. The competitiveness of their markets, health insurance and the role of government are explored. Special topics include regulation and planning, benefit-cost analysis, and reform health plans. Prereq: PA 652, HA 601, HA 621, MHA or MPA program status. (Same as ECO/HA 636.)

**PA 637 HEALTH FINANCE.** (3)
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: MHA/MPA program status and HA 601, HA 621, PA 623, HA 635. (Same as FIN/HA 637.)

**PA 639 MANAGEMENT CONTROL SYSTEMS IN NON-PROFIT ORGANIZATIONS.** (3)
This course is designed to introduce the concept of management control systems in non-profit organizations. The focus of management control is on using resources effectively and efficiently in accomplishing the organizational objectives. Cases covering the spectrum of governmental and non-profit organizational settings will be used to stress the basic concepts and illustrate management techniques that could be used effectively to help accomplish the objectives of the organization. The use of the accounting system database will be analyzed in terms of strengths and weaknesses in designing and implementing an effective management control system.

**PA 641 POLITICAL ENVIRONMENT OF PUBLIC ORGANIZATIONS.** (3)
A study of those aspects of political and legal systems that particularly affect the administration of public agencies. Emphasis on party systems, legislative and executive processes, administrative law, and judicial review of administration. Prereq: MPA program status.

**PA 642 PUBLIC ORGANIZATION THEORY AND BEHAVIOR.** (3)
A course which examines the interaction of both external and internal resources and constraints upon the administrative decision processes in a number of public organizational settings. The objective is an understanding of the practice of administration in public organizations. Prereq: MPA or MHA program status and HA 601. (Same as HA 642.)

**PA 651 THE POLICY PROCESS.** (3)
Broad-based course in public policy formulation and social planning. Emphasis is on the parameters of policy formulation as well as the social planning and impact variables. Both policy processes and relevant content areas will be stressed. Prereq: MPA program status.

**PA 652 PUBLIC POLICY ECONOMICS.** (3)
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA or MHA program status and HA 601 and HA 621. (Same as ECO/HA 652.)

**PA 656 HEALTH PROGRAM EVALUATION.** (3)
A study of the tools necessary for planning and evaluating health programs: planning systems, needs assessment methodologies, data analysis skills, the epidemiologic method, effectiveness and efficiency evaluation. An overview of trends and requirements leading to increased emphasis on planning and program accountability. Prereq: MHA/MPA program status, HA 601, HA 621, PA 623, and HA 635. (Same as HA 656.)

**PA 671 OVERVIEW OF THE HEALTH CARE DELIVERY SYSTEM.** (3)
An introduction to the health care delivery system in the United States, including its composition, functioning, the interrelationships of organizations and professional groups within the system in various settings, health care terminology, and major problems and issues in the delivery of health services. Prereq: MHA/MPA program status. (Same as HA 601.)

**PA 673 HEALTH POLICY DEVELOPMENT.** (3)
An analysis of the development and implementation of health policy on a national, state, local and organizational level. The course will focus on issue and policy analysis, formal and informal processes of policy development and the issues, values and political and community factors affecting policy development and program implementation. Prereq: HA 601 and one of the following courses: HA 611, 621, or 622 and MHA/MPA program status. (Same as HA 673.)

**PA 680 BENEFIT-COST ANALYSIS.** (3)
Principles, practices and applications of applied welfare analysis are the content of this course. The basic theory of benefit-cost analysis is presented and the relevance of implementation analysis in policy analysis is established. Prereq: PA 652. (Same as ECO 680.)

**PA 711 INTERNSHIP IN PUBLIC ADMINISTRATION.** (3)
Practical field experience in an administrative setting under the direction of an academic and a workplace supervisor. Prereq: MPA program status or consent of instructor.

**PA 722 POLICY AND PROGRAM EVALUATION.** (3)
This is a doctoral course concerning policy and program evaluation. Major emphasis will be given to specifying the relationship between evaluation and management functions, evaluation concepts and processes and research methods applicable to evaluation systems and processes. Prereq: MKT 762 or PS 671, or equivalent and Ph.D. program status or consent of instructor.

**PA 724 PUBLIC FINANCIAL MANAGEMENT.** (3)
The course will present a broad view of public financial management and administration problems and techniques, as well as include sections on state and local finance and finance in the Federal sector as it influences other levels of government. Prereq: PA 632 and PA 652 or equivalent; MPA program status or consent of instructor.

**PA 727 ENVIRONMENTAL ECONOMICS, REGULATION AND POLICY.** (3)
This course takes a balanced practitioner approach to the problems of the environment and environmental regulation. Efficiency aspects will be developed carefully, so as to provide a background for an extensive coverage of various available alternative policies. Prereq: PA 652 and MPA or economics program status or consent of instructor. (Same as ECO 684.)

**PA 731 FISCAL AND BUDGETARY POLICY.** (3)
This course examines public budgeting and finance in the public sector. Included is an analysis of economic, managerial, and political approaches to public budgeting and finance. These approaches are then used to analyze several current topics in public finance. Prereq: PA 631 or equivalent, and Ph.D. program status or consent of instructor.

**PA 742 THEORY OF PUBLIC ORGANIZATIONS.** (3)
This course provides doctoral students an in-depth knowledge of the various aspects of public organization theory. It will attempt to integrate the work on public organizations which is currently spread over the fields of organization theory and behavior, executive and bureaucratic politics and public choice economics. Prereq: PA 642 or equivalent, and Ph.D. program status or consent of instructor.

**PA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying examinations.

**PA 751 PUBLIC POLICY FORMULATION AND IMPLEMENTATION.** (3)
The major goals of this course are to examine how public issues become policy proposals, how various proposals are filtered into (or out of) the political process, shaped by political institutions and rules, and the process by which policy is implemented. Prereq: PA 651, or equivalent and Ph.D. program status or consent of instructor.

**PA 752 THE ECONOMICS OF POLICY ANALYSIS.** (3)
This course examines economic approaches to policy analysis. Included is an analysis of the major concepts of economic analysis and their application to a number of policy problems. Prereq: PA 652 or equivalent, and Ph.D. program status or consent of instructor. (Same as ECO 752.)

**PA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PA 775 SPECIAL TOPICS IN HEALTH ADMINISTRATION.** (1-3)
An analysis of selected issues with special significance for health administration. Prereq: MPA/MHA program status. (Same as HA 775.)

**PA 785 INDEPENDENT STUDY IN HEALTH ADMINISTRATION.** (1-3)
Supervised individual research on a topic related to health administration selected by the student. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as HA 785.)

**PA 795 SPECIAL TOPICS IN PUBLIC ADMINISTRATION.** (1-3)
Analysis of specialized topics in public administration of particular interest to practitioners. May be repeated to a maximum of six credits. Prereq: MPA program status or consent of instructor.

**PA 796 INDEPENDENT STUDY IN PUBLIC ADMINISTRATION.** (1-3)
Tutorial course of directed readings, discussion, and analysis of special topics on public administration. May be repeated to a maximum of six credits. Prereq: MPA program status and consent of instructor.

## PAS Physician Assistant Studies

**PAS 842 CLINICAL PRACTICUM IN PHYSICIAN ASSISTANT STUDIES.** (1-6)
This field assignment offers supervised clinical experience appropriate to the PA student's chosen area of practice. May be repeated to a maximum of 12 credits. Studio, 40 hours per week. Prereq: Enrollment in Physician Assistant Program.

**PAS 850 CLINICAL METHODS.** (3)
This course is designed to provide the general principles of obtaining medical histories and performing physical examinations. Lecture, two hours; laboratory, three hours. Prereq: Enrollment in the Physician Assistant Program.

***PAS 851 INTRODUCTION TO THE PA PROFESSION.** (2)
This course provides an overview of selected health care delivery issues affecting primary care physician assistants. The first half of the semester is devoted to examination of the history and evolution of the PA profession, current PA practice demographics and regulations, principles of quality assurance, risk management, and medical literature evaluation. The second half of the semester is devoted to the study of the ethical dimensions of PA practice. Topics include moral principles and ethical theories, as well as a series of seminar discussions on contemporary ethical issues confronting primary care providers in the 20th and 21st centuries. Prereq: Enrollment in the Physician Assistant Program.

**PAS 853 INTRODUCTION TO HEALTH AND DISEASE.** (3)
An overview of the etiology, distribution, and prevention of basic disease processes. Prereq: Enrollment in Physician Assistant Program.

**PAS 854 CLINICAL LECTURE SERIES.** (5)
A study of common disease entities identifying causes, clinical presentation, diagnostic evaluation, and management. Emphasis is on primary care problems with substantial overlap in the major medical specialties. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

**PAS 855 PSYCHOSOCIAL FACTORS IN PRIMARY HEALTH CARE.** (3)
This course focuses on psychosocial factors which play an important role in the development and treatment of common primary health care problems. Prereq: Admission to Physician Assistant Program.

**PAS 856 PATIENT EVALUATION AND MANAGEMENT.** (3)
A combination of formal presentations, laboratory practice sessions, and supervised patient care experiences involving patient evaluation and management skills. Lecture, one hour; laboratory, five hours per week. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

**PAS 857 CLINICAL LABORATORY PROCEDURES.** (2)
This is a survey laboratory course covering common laboratory procedures performed in the primary care clinical setting. Emphasis will be placed on performing and interpreting basic clinical tests. Lecture, one hour; laboratory, three hours per week. Prereq: Enrollment in the Physician Assistant Program.

**PAS 860 FAMILY MEDICINE CLERKSHIP. (5)**
This is a five-week clinical course designed to provide the student physician assistant experience associated with family medicine. The student will have the opportunity to function in either an office-based or clinical setting supervised by a family physician. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 861 PEDIATRIC CLERKSHIP. (5)**
This is a five-week clinical course designed to acquaint the student physician assistant with clinical experience in evaluating pediatric patients. The student will have the opportunity to function within a pediatric practice under medical supervision. Emphasis will be placed on the diagnosis and management of diseases of children. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 862 OBSTETRICS AND GYNECOLOGY CLERKSHIP. (5)**
This is a five-week course designed to provide the student physician assistant experiences in the care of the obstetrical patient involving prenatal labor and delivery and post-partum care under medical supervision. Emphasis will be placed on gynecologic problems commonly seen in primary care settings. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 863 SURGERY CLERKSHIP. (5)**
This is a five-week clinical course that provides the student physician assistant experiences in the management of patients with surgical problems. Emphasis will be placed on the central principles of surgery. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 867 PRECEPTORSHIP I. (4)**
Provides the PA student with the opportunity to integrate his previous year of didactic education and seven months of clinical course work into a functioning system. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 868 PRECEPTORSHIP II. (4)**
This course provides the student with the opportunity to integrate his previous year of didactic education and seven months of clinical course work into a functioning system. This course is a continuation of Preceptorship I. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 869 INTERNAL MEDICINE CLERKSHIP. (5)**
This course provides the students with an experience in evaluating the adult patient with the variety of acute and chronic problems seen in an outpatient setting. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 870 EMERGENCY MEDICINE CLERKSHIP. (5)**
This course provides the student with training in triaging, evaluating and managing patients with a wide variety of complaints seen in an emergency room setting. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 871 PSYCHIATRIC CLERKSHIP. (5)**
This course provides the student with an experience in evaluating psychosocial problems and mental health in an outpatient setting, and observation of the ongoing management of these problems. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

**PAS 872 PRACTICAL THERAPEUTICS. (3)**
The purpose of this course is to provide the student with an understanding of the practical use of drugs utilized in primary care. Prereq: Enrollment in the Physician Assistant Program.

**PAS 880 SEMINAR IN PHYSICIAN ASSISTANT STUDIES. (1-3)**
A study of selected topics and contemporary issues regarding the delivery of health care services by physician assistants. May be repeated to a maximum of six credits. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

## PHI Philosophy

**Note:** Prior to the advance registration period each semester, the Department of Philosophy publishes information on courses (200 level and above) to be offered for the next semester. This information includes details on course topics and materials to be used in each course. Students are encouraged to obtain the information to assist them in course selection.

**PHI 100 INTRODUCTION TO PHILOSOPHY: KNOWLEDGE AND REALITY. (3)**
An introduction to philosophical studies with emphasis on issues of knowing, reality, and meaning related to human existence.

**PHI 120 INTRODUCTORY LOGIC. (3)**
A course which treats argumentation, syllogistic, and sentential logic. The focus will be on the use of formal methods in the construction and criticism of actual arguments, the aim being to inculcate standards of good reasoning, e.g., clarity, consistency and validity. Credit is not given to students who already have credit for PHI 320.

**PHI 130 INTRODUCTION TO PHILOSOPHY: MORALITY AND SOCIETY. (3)**
An introduction to philosophical studies with emphasis on a critical study of principles of moral action and social and political values.

**PHI 251 PHILOSOPHY AND CLASSICAL PHYSICS. (3)**
An historical introduction to the philosophical background of classical physics as the latter was developed by thinkers like Isaac Newton and James Clerk Maxwell. Concentrating on metaphysics and the philosophy of scientific method, this course includes a study of scientists and philosophers like Aristotle, Copernicus, Galileo, Leibniz, and Faraday. Prereq or concur: PHY 231 or consent of instructor.

**PHI 260 HISTORY OF PHILOSOPHY I: FROM GREEK BEGINNINGS TO THE MIDDLE AGES. (3)**
An introductory study of the development of Western philosophy from ancient through late medieval times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Plato, Aristotle, Augustine and Aquinas.

**PHI 270 HISTORY OF PHILOSOPHY II: FROM THE RENAISSANCE TO THE PRESENT ERA. (3)**
An introductory study of the development of Western philosophy from early modern to recent times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Occam, Descartes, Hume and Kant.

**PHI 300 UNDERGRADUATE SEMINAR. (3)**
An intensive study of special topics in philosophy with emphasis on current scholarship. The focus may be intradisciplinary or interdisciplinary. Prerequisites appropriate to the specific topic will be listed in the schedule book for each offering. May be repeated to a maximum of six hours.

**PHI 305 HEALTH CARE ETHICS. (3)**
A consideration of the ethical issues and difficult choices generated or made acute by advances in biology, technology, and medicine. Typical issues include: informed consent, healer-patient relationships, truth telling, confidentiality, problem of birth defects, abortion, placebos and health, allocation of scarce medical resources, genetic research and experimentation, cost containment in health care, accountability of health care professionals, care of the dying, and death.

**PHI 310 PHILOSOPHY OF HUMAN NATURE. (3)**
A course introducing philosophy at the upper division level which studies various issues involved in analyzing what it means to be human, in the interest of developing a coherent conception of man. Answers will be sought to questions like these: Is there a human nature? What would differentiate the properly human from the nonhuman? What kind of relations tie a human being to environment, society, and history?

**PHI 317 EXISTENTIALIST THOUGHT AND LITERATURE. (3)**
A survey of existentialism as a literary movement as well as a philosophical one, with emphasis upon their intersection and interaction. The course will trace the emergence of existentialist themes in modern thought and culture, and will analyze and assess the movements' continuing significance.

**PHI 320 SYMBOLIC LOGIC I. (3)**
A systematic study of sentential logic, elementary quantification, and the logic of identity. The student will acquire specific skills in symbolic methods of analysis which are necessary for further study in logic as well as useful for addressing complex issues in philosophy and other areas.

**PHI 330 PROFESSIONAL ETHICS. (3)**
A study of ethical issues related to professional roles, especially those of physicians and lawyers. Among the topics to be considered are the nature and justification of professional responsibilities and duties; obligations of professions to society; the professional-client relationship and its rights and obligations; enforcement of codes of ethics.

**PHI 333 AGRICULTURAL ETHICS. (3)**
This course examines the moral dilemmas which arise from the production, distribution and consumption of food in modern societies. Various theoretical positions, such as Libertarianism, Utilitarianism, Egalitarianism, are examined. In addition the course will consider how the right of everyone to an adequate diet can be justified as well as what that right implies for public policy decisions.

**PHI 335 THE INDIVIDUAL AND SOCIETY. (3)**
An examination of several incompatible views concerning the relation between the individual and society, including radical individualism and collectivism, as well as more moderate theories. Attention will be given to contemporary as well as classical spokesmen for these views and emphasis will be placed upon relating these theories to contemporary social, cultural, and political issues.

**PHI 337 INTRODUCTION TO LEGAL PHILOSOPHY. (3)**
A general introduction to basic concepts, institutions, and mechanisms of law. Understanding of the legal system and its methods is promoted through discussion of topics which include: basic legal reasoning, the function of the legal process, fundamental legal concepts and categories (such as property, crime, and contract).

**PHI 338 MORALITY AND BUSINESS. (3)**
A systematic analysis of moral questions for business and economics. How do major ethical theories view the practice of business in general? What moral principles underlie activities such as stock issuance, advertising, accounting and the social audit? What ethical issues are involved in hiring and promotion, ecological concerns and conflicts of interest?

**PHI 343 ASIAN PHILOSOPHY. (3)**
An introduction to the main concepts, assumptions, problems and texts of one or more Asian philosophical traditions, such as Hinduism, Buddhism, Taoism, and Confucianism.

**PHI 350 DEATH, DYING AND THE QUALITY OF LIFE. (3)**
A philosophical and interdisciplinary investigation of a cluster of prominent issues about the meaning of life and death, caring for dying persons, and the quality of life of the terminally ill. Among topics included are: death definitions and criteria; allowing to die vs. killing; euthanasia and suicide; life prolongation, ethics of care of the terminally ill; and rights of the dying.

**PHI 361 BIOLOGY AND SOCIETY. (3)**
A study of the implications of biology for understanding and changing society. Emphasis is on sociobiology and the value of viewing social behavior as a product of adaptive evolution by natural selection. Representative philosophical issues include biological constraints on human nature and society, genetic engineering, reductionism, the scientific method, and bioethics. Prereq: A college course in biology or consent of instructor.

**PHI 395 INDEPENDENT WORK. (3)**
Open only to students who have distinguished themselves in philosophy or in allied subjects. May be repeated to a maximum of 12 credits. Prereq: Major and standing of 3.0 in department.

**PHI 399 EXPERIENTIAL LEARNING. (1-6)**
To provide the opportunity for students to earn credit for work-study experience. The student must work with a faculty member to describe the nature of the experience, the work to be performed, the accompanying philosophical reflection and study, appropriate course credit for the work, and criteria by which the work may be evaluated. This information must be written and filed in the Philosophy Department and the Office for Experiential Education prior to the student's registration for the course. May be repeated to a maximum of 12 credits. Pass-fail only. Prereq: Consent of instructor and department chairperson; completion of a departmental learning agreement.

**PHI 500 TOPICS IN PHILOSOPHY (Subtitle required). (3)**
Topics that cross traditional systematic or historical lines in philosophy or that relate philosophy to topics or periods in other disciplines. May be repeated to a maximum of six credits.

**PHI 520 SYMBOLIC LOGIC II. (3)**
An intermediate course in symbolic logic which reviews sentential logic, develops further the logic of quantification, and introduces metalogical issues such as the construction, consistency, and completeness of deductive systems. Prereq: PHI 320 or consent of instructor.

GROUP A

**PHI 503 TOPICS IN ANCIENT PHILOSOPHY. (3)**
A study of representative texts and issues in Ancient Philosophy with special attention to historical continuity and the interrelations of thinkers and problems. Possible Topics: Pre-Socratic Philosophers, Plato, Aristotle, Stoicism, Epicureanism, Scepticism. May be repeated to a maximum of six credits.

**PHI 504 ISLAMIC AND JEWISH PHILOSOPHY AND THE CLASSICAL TRADITION. (3)**
A study of representative texts and issues in Islamic and Jewish philosophy with special attention to the historical continuity with the Greek philosophical tradition and the interrelations of thinkers and problems. Possible topics: the commensurability of philosophy and (revealed) law, the creation or eternity of the world, the nature of prophecy, the human good, the nature of God and divine language. Prereq: PHI 260 or consent of instructor.

**PHI 506 TOPICS IN MEDIEVAL PHILOSOPHY.** (3)
An investigation of issues in Medieval Philosophy. Topics will be chosen which illustrate continuity both with Ancient Greek Sources and with problems in Modern Philosophy. Possible Topics: Neo-Platonism, Faith and Reason, Freedom and Determinism, Universals, the Existence of God, Renaissance reactions. May be repeated to a maximum of six credits.

**PHI 509 TOPICS IN THE HISTORY OF MODERN PHILOSOPHY.** (3)
A selective study of representative issues and texts in modern philosophy, with special emphasis upon historical continuity and interrelation of thinkers and problems. Possible topics: British empiricism; Leibniz and Locke; Descartes and his critics; Hobbes and Rousseau; Hume and Kant; philosophy and the rise of modern science. May be repeated to a maximum of six credits.

**PHI 513 NINETEENTH CENTURY PHILOSOPHY.** (3)
An examination of the major topics and trends in 19th century philosophy. Prereq: PHI 270 or consent of instructor.

**PHI 514 AMERICAN PHILOSOPHY.** (3)
A study of the development of philosophy in America from colonial to recent times with attention to religious, political, literary and scientific influences on American thought. The focus will be on the pragmatic spirit that was the moving force from 19th century idealism to 20th century naturalism, with emphasis on the works of such thinkers as Royce, Peirce, James and Dewey.

**PHI 515 CONTEMPORARY PHILOSOPHY: THE ANALYTIC TURN.** (3)
A survey of several 20th century philosophical movements, such as logical positivism and ordinary language philosophy, whose members agree that careful attention to language is one of the keys to the resolution of philosophical problems. The works of representative thinkers such as Moore, Russell, the Vienna Circle, Wittgenstein and Austin will be studied.

**PHI 516 CONTEMPORARY PHILOSOPHY: PHENOMENOLOGICAL DIRECTIONS.** (3)
A study of 20th century philosophies represented by the works of thinkers such as Husserl and Heidegger, Gadamer and Ricoeur, Habermas and Apel. Generally based in a reflection on human experience, these philosophies undertake a radical criticism of common conceptions of human nature while variously emphasizing rationality, ontology, language, or social and historical context. Prereq: PHI 270 or consent of instructor.

**PHI 517 EXISTENTIALISM.** (3)
A systematic study of the fundamental concepts and problems of existentialism. Readings selected from such philosophers as Kierkegaard, Nietzsche, Sartre, Marcel, Heidegger, and Jaspers.

GROUP B

**PHI 530 ETHICAL THEORY.** (3)
A study of ethical theories by detailed examination of a few selected works. Theories considered may include naturalism, intuitionism, noncognitivism, utilitarianism, universalizability, and natural law.

**PHI 535 SOCIAL AND POLITICAL PHILOSOPHY.** (3)
A critical examination of some philosophical problems concerning the nature and evaluation of social and political organizations. For example, questions concerning the nature, justification, and limits of political power may be explored in connection with a study of important classical positions. Prereq: One course in philosophy.

**PHI 537 PHILOSOPHY OF LAW.** (3)
Concept of law; relations betweeri law and morals; nature of legal reasoning; analysis of legal concepts; justification of punishment. Pass/fail basis only for law students. (Same as LAW 837.)

**PHI 545 PHILOSOPHY OF RELIGION.** (3)
An analysis of the philosophical issues raised by religion, such as the problem of religious knowledge, the nature of religious language, science and religion, concepts of God, death, and evil.

**PHI 592 AESTHETICS.** (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. Lectures, discussions, reports. (Same as A-H 592.)

GROUP C

**PHI 550 PHILOSOPHICAL PROBLEMS IN KNOWLEDGE AND REALITY.** (3)
Critical examination of issues regarding the foundations of knowledge, the nature of reality and the relation between the two. Evidence, belief, certainty, perception and justification will be among problems considered. Understandings of truth, existence, causality, freedom, time, space and matter will also be attended to. Prereq: PHI 100 or PHI 260 or PHI 270 or equivalent.

**PHI 560 PHILOSOPHY OF SCIENTIFIC METHOD.** (3)
An examination of the logical and epistemological foundations of empirical science, including fundamentals of concept formation, criteria of cognitive significance, issues of explanation, interpretation, and prediction, and testing and confirmation of theories and laws. Prereq: PHI 120 or equivalent or consent of instructor.

**PHI 561 PHILOSOPHICAL PROBLEMS IN THE NATURAL SCIENCES (Subtitle required).** (3)
A systematic examination of selected conceptual and/or metaphysical problems in the natural sciences. Possible topics include: reductionism, teleology, causality and determinism, the structure of space-time, and the "anthropic principle" in cosmology. Prereq: PHI 120 or PHI 320, or two semesters of natural sciences or consent of instructor.

**PHI 562 PHILOSOPHICAL PROBLEMS IN THE SOCIAL AND BEHAVIORAL SCIENCES.** (3)
An examination of various methodological issues and broader philosophical questions of special concern in the social sciences. Among the topics to be studied: the structure of theories and the roles of mathematics and experimentation in the social sciences, the possibility of an objective or value free social science, and the conceptions of human nature presupposed by different schools of social science.

**PHI 565 PHILOSOPHY OF LANGUAGE.** (3)
An investigation of problems current in the philosophy of language such as meaning and reference, the nature of analysis, linguistic relativity and the relation of linguistics to philosophy.

**PHI 570 PHILOSOPHY OF HISTORY.** (3)
An examination of the theories and methods utilized by historians with special attention to the problems of laws and explanations in history, the nature of historical knowledge and narrative, and the roles of causal judgments and historical understanding. Attention will also be given to theoretical interpretations of history as offered by Marx, Hegel, Toynbee and others.

**PHI 575 PHILOSOPHY OF MIND.** (3)
An examination of problems current in the philosophy of mind, such as the concept of person, the relation of mind and body, the relation of minds and machines, knowledge of other minds, and the roles of dispositions and volitions in human action. Attention will be given to the philosophical analysis of such psychological categories as consciousness, feeling, emotion, perception, imagination, thinking and will.

GRADUATE SEMINARS

**PHI 630 SEMINAR IN MORAL PHILOSOPHY.** (3)
A specialized graduate course in moral philosophy that treats the history of moral issues and doctrines, or emphasizes contemporary methodological discussions, or examines the concrete societal implications of major theories, or combines these approaches. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHI 650 SEMINAR IN METAPHYSICS AND EPISTEMOLOGY (Subtitle required).** (3)
A specialized advanced study of topics in traditional areas of metaphysics and epistemology or of more contemporary topics, some of which may cut across or even challenge the framework of those traditional domains. Topics may include such issues as the nature of human action, problems of reference and modality, conceptions of time and space, and the sociology of knowledge. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**PHI 680 SPECIAL TOPICS IN PHILOSOPHY.** (3)
Studies in philosophical problems which either cut across or lie outside the standard areas of philosophical inquiry. May be repeated to a maximum of six credits.

**PHI 700 SEMINAR IN ANCIENT PHILOSOPHY.** (3)
Intensive study of original works of such major classical philosophers as Plato and Aristotle. May be repeated to a maximum of six credits. Prereq: PHI 260 or equivalent.

**PHI 705 SEMINAR IN MEDIEVAL PHILOSOPHY.** (3)
An intensive study of the issues treated by one or more medieval philosophers, e.g., Augustine, Aquinas, Scotus or Ockham. May be repeated to a maximum of six credits. Prereq: PHI 506.

**PHI 710 SEMINAR IN MODERN PHILOSOPHY.** (3)
Intensive study in the major works of such prominent philosophers of modern times as Descartes, Locke, Hume, Kant, and Hegel. May be repeated to a maximum of six credits. Prereq: PHI 270 or equivalent.

**PHI 715 SEMINAR IN RECENT PHILOSOPHY.** (3)
Intensive study of major philosophers of the 20th Century such as Russell, Wittgenstein, J.L. Austin, and Merleau-Ponty. May be repeated to a maximum of six credits. Prereq: PHI 515 or equivalent.

**PHI 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PHI 750 SEMINAR IN INTERDISCIPLINARY ISSUES.** (3)
This course focuses on issues and topics which require the integration of philosophical aims and methods with work in other disciplines. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

**PHI 755 TUTORIAL IN INTERDISCIPLINARY ISSUES.** (1-6)
As a tutorial, this course is structured individually to a student's research and study projects. Topics and issues are to be chosen and pursued in work that integrates philosophical methods and ideas within other disciplinary areas. May be repeated to a maximum of nine credits. Prereq: Approval of the Student's Advisory Committee.

**PHI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PHI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PHI 790 RESEARCH IN PHILOSOPHY.** (3)
This course is primarily intended for advanced students who desire and are prepared to do research in philosophy. May be repeated to a maximum of 12 credits.

## PHR Pharmacy

**PHR 222 DRUGS, MEDICINES, AND SOCIETY.** (3)
The course is designed to enable the university graduate to be sufficiently sophisticated in his understanding of the physiological and behavioral effects of medicines, environmental toxicants, and psychoactive chemicals so that he may make informed decisions regarding their use in his life, home and community. This course provides such information in the context of drug development, standardization, distribution, control, use and misuse in a modern society. (Note: It is felt that this course might be of particular interest to freshmen.)

**PHR 303 HISTORY AND ETHICS OF PHARMACY.** (3)
A study of the development of the profession of pharmacy, emphasizing the historical background and ethical principles upon which the profession rests. The nature and place of pharmaceutical services in society are considered. The moral standards and professional conduct required of a pharmacist are emphasized. Coreq: BSC 331.

**PHR 336 PHYSIOLOGIC BASIS FOR THERAPEUTICS I.** (4)
Basic concepts of human anatomy and physiology integrated with an introduction to pathophysiology and the pharmacodynamics of typical drugs. Strong emphasis is placed on homeostasis, cell and nerve function and the organization of the central and autonomic nervous systems. Lecture, four hours. Prereq: BIO 104, 105; CHE 232 and PHY 203.

**PHR 337 PHYSIOLOGIC BASIS FOR THERAPEUTICS II.** (3)
A continuation of PHR 336 involving the integrated physiology of the cardiovascular, renal and pulmonary systems with an introduction to the pathophysiology of each system and the pharmacodynamics of typical drugs. Lecture, three hours. Prereq: PHR 336.

**PHR 340 PRINCIPLES OF MEDICINAL CHEMISTRY.** (4)
A course designed to introduce the fundamental concepts of the application of chemical principles to the study of medicinal agents. Basic heterocyclic chemistry as is needed to develop the chemistry of physiologically active molecules. Physiochemical properties of drugs and their relation to physiological activity, and fundamental consideration of the metabolic changes in drug molecules are major areas of development of the course presentation. Prereq or concur: PHR 400.

**PHR 395 INDEPENDENT WORK IN PHARMACEUTICAL CHEMISTRY.** (1-3)
Selected problems of interest from the general field of pharmaceutical chemistry. May be repeated to a maximum of six credits. Prereq: Pharmacy major and standing of 3.0 in major. Consent of instructor.

**PHR 400 BIOCHEMISTRY.** (4)
A fundamental course in the chemistry and interrelationships of carbohydrates, lipids, and proteins, as well as the role of enzymes, vitamins, and hormones in physiological processes. Prereq: CHE 232, 233, or equivalent.

**PHR 474 INDEPENDENT PROBLEMS IN TOXICOLOGY.** (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in toxicology and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHR 475 INDEPENDENT PROBLEMS IN PHARMACOGNOSY.** (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacognosy and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHR 476 INDEPENDENT PROBLEMS IN PHARMACOLOGY.** (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacology and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHR 510 MODERN METHODS IN PHARMACEUTICAL ANALYSIS. (5)**
A course which deals with the application of modern analytical methods, primarily instrumental methods, in the determination of the strength, purity, and quality of drugs and pharmaceuticals. Laboratory exercises include analysis of raw materials and finished dosage forms. Lecture, three hours; laboratory, four hours. Prereq: CHE 226.

**PHR 520 SPECIAL TOPICS IN PHARMACY LAW. (2)**
Discussion of the legal framework and special legal issues in pharmacy practice. Topics will include application of antitrust laws to pharmacy, patent and trademark issues relevant to pharmacy, legal issues related to prescription drug insurance programs, professional liability and legislative issues such as drug product selection. Prereq: PHR 831.

**PHR 525 INTRODUCTION TO SOCIOPHARMACOLOGY. (2)**
An introductory study of drug-taking experiences and behaviors. The course provides an overview of theories and research findings which describe the relationships between social and cultural factors and drug-taking experiences. These theories and research findings are contrasted with the pharmacological paradigm of drug effects and the medical model. Prereq: Six credit hours in behavioral, social and pharmacologic sciences.

**PHR 530 RADIOPHARMACEUTICS. (3)**
Basics of radioactive decay and detection. Labelling of molecules and cells with radionuclides. Imaging systems and clinical aspects of radiopharmaceuticals. Radioanalytical applications in pharmaceutical sciences, including positron tomography and gamma scintigraphy. Development of new radiopharmaceuticals and absorbed dose calculations. The principles of radiation safety and radiobiology. Prereq: Consent of instructor.

**PHR 541 PHARMACEUTICAL TECHNOLOGY CLERKSHIP. (4)**
An integrated experience in the acquisition and application of physiochemical principles and pharmaceutical technology procedures to the provision of institutional pharmaceutical services involving drug efficacy, drug safety and drug administration. The lecture-laboratory sessions supported by the clerkship experiences in an institutional setting will acquaint the student with various aspects of pharmaceutical technology, such as sterile product formulation, parenteral admixture program, hyperalimentation therapy, unit dose packaging, preparation and control of radiopharmaceuticals, sterilization of drugs and devices, decontamination techniques, compounding of special formulas and quality control testing. Lecture, one hour; laboratory and clerkship, six hours. Prereq: PHR 806 and permission of instructor.

**PHR 545 STERILE PARENTERALS AND DEVICES. (2-3)**
The course will describe the fundamental concepts, principles and techniques involved in the characterization, development, evaluation and preparation of sterile products. Lecture, two credits; lecture with laboratory, three credits. Prereq: PHR 846 and PHR 825 or equivalent and consent of instructor.

**PHR 595 INDEPENDENT PROBLEMS IN PHARMACY ADMINISTRATION. (1-3)**
Selected problems of interest in the areas of behavioral, economic, ethical, historical, legal, psychological and social aspects of pharmacy. Methods may include literature search, surveys, field studies and experimental design. The course may serve as a professional elective for the pharmacy student and as a graduate course for the graduate student. May be repeated for a maximum of six credits. Prereq: Consent of the instructor.

**PHR 612 QUANTITATIVE PHARMACODYNAMICS: PHARMACOKINETICS. (3)**
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of both mathematical models and model-independent approaches for describing these processes. Prereq: PHR 802 (or equivalent), MA 114 and consent of instructor. (Same as PHA 612.)

**PHR 622 ADVANCED BIOPHARMACEUTICS. (2)**
An advanced treatment of the factors affecting drug availability from dosage forms and the influence of the route of administration and the dosage regimen on drug availability. Prereq: PHR 612.

**PHR 630 PHARMACEUTICAL RATE PROCESSES. (3)**
Kinetics of reactions of pharmaceutical interest; mechanisms of drug decomposition and theoretical approaches to stabilization and preservation; accelerated stability analysis. Prereq: Physical chemistry and chemical kinetics.

**PHR 631 EQUILIBRIUM PHENOMENA IN PHARMACEUTICAL SYSTEMS. (3)**
An advanced study in special topics of a physical chemical nature which are applicable to pharmacy, with special emphasis on physical properties and molecular structure, solubility, complexation and equilibria in solution. Prereq: Physical chemistry.

**PHR 645 NEUROTOXICOLOGY. (2)**
Multidisciplinary discussions of the major sites and mechanisms of drug/chemical-induced nervous system toxicity. Presentations by faculty and graduate students. Prereq: BCH 501 and 502, PGY 502 and PHA 522 or equivalent and consent of instructor. (Same as TOX 645.)

**PHR 647 INTRODUCTION TO MOLECULAR PHARMACOTHERAPEUTICS. (3)**
A discussion of the development of potential therapeutic entities using molecular biotechnology. Recent advances in the design and delivery of target-specific treatments such as special peptides, monoclonal antibodies and gene therapies will be the primary focus. Prereq: BCH 501 and 502, BCH 401G or equivalent or consent of instructor.

**PHR 649 MOLECULAR PHARMACOLOGY. (3)**
The intent of this course is to describe the molecular aspects of a variety of physiological systems that are subject to pharmacological manipulation. Emphasis will be on the molecular genetics, biochemistry, and subcellular organization and biology of these systems, and on the pharmacological techniques used to study these systems. Genetic diseases associated with these systems will also be described. The course will focus on areas of research which represent the forefront of modern pharmacological investigation. Prereq: PHA 522, PGY 502, BCH 501, 502, or consent of instructor. (Same as PHA/TOX 649.)

**PHR 664 THEORY AND PRACTICE OF DRUG METABOLISM. (3)**
A broad overview of the chemistry of drug biotransformation with emphasis on experimental considerations and analytic methodology for the isolation and identification of metabolites and the study of metabolic processes. Prereq: BCH 501 and CHE 538 or consent of instructor.

**#PHR 668 PSYCHOTHERAPEUTICS FOR ADVANCED NURSING PRACTICE. (3)**
This course provides advanced background in psychotherapeutics for psychiatric/mental health nurse practitioners. Psychiatric disorders and their pharmacotherapy are addressed with emphasis on indications for use, mechanisms of action, side effects, pharmacokinetics and nursing management problems. Prereq: Graduate standing in nursing or permission of instructor. (Same as NUR 668.)

**PHR 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PHR 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PHR 760 TOPICS IN PHARMACEUTICAL SCIENCES. (2-4)**
This course deals with emerging concepts in pharmaceutical sciences which are not being covered in other courses. May be repeated to a maximum of 10 hours. Prereq: Consent of instructor.

**PHR 762 BIOORGANIC MECHANISMS. (3)**
An in-depth discussion on the bioorganic chemistry aspects of the active sites of enzymes and drug receptors, the molecular basis of drug design, and principles of drug metabolism. Within these topics, the mode of action of some of the major coenzymes and drugs will be discussed from a mechanistic chemistry point of view. Prereq: CHE 538, CHE 633, BCH 501 or consent of instructor.

**PHR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**PHR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**PHR 774 GRADUATE SEMINAR IN PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS. (1)**
Reports and discussion of current research and literature of general interest in the area of pharmacology and experimental therapeutics. The grade will be based on the presentation of the required annual seminar which will be objectively evaluated by the Faculty of the Division of Pharmacology and Experimental Therapeutics. May be repeated to a maximum of eight credits. Prereq: Graduate standing.

**PHR 776 SEMINAR IN PHARMACEUTICAL SCIENCES I. (1)**
Reports and discussion of pertinent research and literature in the pharmaceutical sciences. Required of all graduate students. Prereq: Graduate standing.

**PHR 778 SEMINAR IN PHARMACEUTICAL SCIENCES II. (1)**
Reports and discussion of pertinent research and literature in a disciplinary area of the pharmaceutical sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing.

**PHR 779 MEMBRANE SCIENCES COLLOQUIUM. (1)**
Outstanding membrane scientists present their current research on biological and/or synthetic membranes. Students read a pertinent paper by the speaker prior to his/her talk and write a short paper on the talk; especially important is relevance of the main points of the talk to membrane science in general and the student's own research in particular. May be repeated to a maximum of six credits. (Same as BCH/CHE/CME/PHA 779.)

**PHR 780 SPECIAL PROBLEMS IN PHARMACEUTICAL SCIENCES. (1-6)**
Selected problems of laboratory or literature nature in which a student pursues a topic of interest to him under the supervision of a faculty member particularly qualified in that area. May be repeated once. Prereq: Consent of instructor.

**PHR 790 RESEARCH IN PHARMACEUTICAL SCIENCES. (1-12)**
Research work to be conducted in selected areas of pharmaceutical sciences. Prereq: Approval of student's special committee and consent of instructor.

**PHR 804 PHARMACEUTICS I: ANALYSIS AND PHYSICAL PHARMACY. (4)**
A study of the analytical techniques commonly used to conduct drug quality assurance and determine drug concentrations in biologic fluids. Emphasis is placed on compendial standards, pharmaceutical literature and the physical chemical principles of drug dosage form design. Demonstration of competence in pharmaceutical calculations by examination is required for passing the course.

**PHR 805 PHARMACEUTICS II: DRUG DELIVERY SYSTEMS. (4)**
A continuation of PHR 804, concentrating on contemporary drug delivery systems, principles of compounding, and methods of manufacture. Emphasis is placed on the design, function, use, and evaluation of modern drug delivery systems. Laboratory experiences are directed toward a study of the analytical and physical-chemical aspects of dosage form design and quality assurance. Lecture, three hours; laboratory, four hours. Prereq: PHR 804.

**PHR 806 PHARMACEUTICS III: BIOPHARMACEUTICS AND PHARMACOKINETICS. (4)**
A continuation of PHR 805, concentrating on the physical-chemical principles underlying in vivo dosage form performance and the absorption, distribution, metabolism, and excretion of drugs. Emphasis is placed on the biopharmaceutics of drug product performance and the pharmacokinetic calculation of dosage regimens. Lecture, three hours; laboratory, four hours. Prereq: PHR 805.

**PHR 811 COMPUTER APPLICATIONS IN PHARMACY. (2)**
A guide to the selection and use of computers in pharmaceutical practice. Descriptions of functions, cost-benefit considerations, hardware and software, capabilities of various systems, language, applications to patient profiles, inventory control and accounts are considered.

**PHR 812 COMMUNICATION SKILLS FOR PHARMACISTS. (3)**
An analysis and application of the factors that promote or hinder successful communication between pharmacists and patients, pharmacists and the general public, and pharmacists and other health care personnel. The course is designed to make the student more aware of the importance of the role of communication on interpersonal interaction and the consequences of poor communication. The primary focus is to improve upon the student's ability to communicate effectively in specific situations. Prereq: BSC 331, and PHR 831.

**PHR 813 GERIATRIC PHARMACY. (3)**
A course designed to educate students in the basic knowledge of attitudes and skills required to meet the pharmaceutical needs of the elderly. Topics include discussions of the aging process, physiological and psychological changes in the elderly, how these changes influence patient compliance and the responses to drug and nondrug treatments, monitoring drug use in long-term care facilities, and special community services available to the elderly. Prereq: PHR 849, 852, 853, 854 and 856 or permission of instructor. (Same as GRN 513.)

**PHR 826 INTRODUCTION TO NUCLEAR PHARMACY. (3)**
The subject matter in this course includes: an introduction to basic atomic structure, radioactivity, detection of radiation, interactions of radiation with matter, radiation safety, dosimetry, the major emphasis being placed on radiopharmaceuticals and nuclear medicine instrumentation. Prereq: PHR 806 and consent of instructor.

**PHR 827 PRACTICE OF NUCLEAR PHARMACY. (3)**
Basic theory and methodology in radionuclide labeling of agents used in nuclear medicine, drug product information, quality control procedures, legal requirements, dosage preparation, dose calculations, and basic manipulative functions using protective barriers. Two hours lecture and three hours laboratory per week. Prereq: PHR 826 and consent of instructor.

**PHR 828 NUCLEAR PHARMACY EXTERNSHIP. (4, 8, 12, or 16)**
This externship provides the student with an integrated practice experience in the provision of nuclear pharmaceutical services in various practice settings. Each four-credit block consists of four weeks of full time (40 hr/week) directed externship experience. The student may elect the externship experience in blocks of four credits. May be repeated to a maximum of 16 credits. Prereq: PHR 827 and consent of instructor.

**PHR 831 PHARMACY MANAGEMENT AND HEALTH CARE SYSTEMS. (4)**
An introduction to the basic concepts, principles and methods of pharmacy management applicable to all practice settings with emphasis on practice alternatives, management approaches and styles, organizational principles, behavior and forms, personnel, purchasing and inventory control, pricing, professional fees, and pharmacy services and patronage. Topics are discussed within the framework of the health care delivery system in the United States, and the role of the pharmacist within these systems and within professional organizations. Prereq: BSC 331, PHR 303.

**PHR 832 ADVANCED COMMUNITY PRACTICE MANAGEMENT.** (2)
A study of the principles and methods unique to the management of a community pharmacy, building on previous foundations and focusing on the entrepreneurial aspects of management. Prereq: PHR 831 and consent of instructor.

**PHR 833 ADVANCED INSTITUTIONAL PRACTICE MANAGEMENT.** (2)
Application of management principles to institutional and group practices. Emphasis is on the acquisition, distribution and control of drugs by pharmacists in the institutional practice settings and the justification, establishment and evaluation of clinical pharmacy services. Prereq: PHR 831, PHR 848.

**PHR 835 PHARMACEUTICAL LAW.** (3)
A study of important legislation, regulations and rulings related to the practice of pharmacy. Prereq: PHR 831.

**PHR 848 INSTITUTIONAL PRACTICE AND STERILE PRODUCTS.** (4)
An introduction to the practice of pharmacy in institutional settings and clinics. Emphasis is placed on principles of parental drug preparation, home health care and the delivery of pharmaceutical services in group practices. Lecture with some laboratory experiences and demonstrations. Prereq: PHR 805; coreq; PHR 849.

**PHR 849 DISPENSING PHARMACEUTICALS.** (3)
A discussion of the principles of dispensing medications with emphasis on patient counseling, patient monitoring, drug interactions and physical-chemical incompatibilities involved in compounding. Lecture, two hours; laboratory, three hours. Prereq: PHR 806, PHR 830; coreq: PHR 848.

**PHR 850 PHARMACOTHERAPEUTICS: IMMUNE SYSTEMS.** (4)
A study of the immune systems, immunotherapy, and select autoimmune diseases and their treatment. The course includes a discussion of neoplasias and anti-neoplastic therapy. Prereq or coreq: PHR 337.

**PHR 851 PHARMACOTHERAPEUTICS: NERVOUS SYSTEMS.** (5)
A study of human disease processes and rational pharmacotherapeutics relating to the autonomic and central nervous systems. Emphasis is placed on the scientific principles of pathophysiology, pharmacology and toxicology, the incorporation of these principles to the clinical application of modern drug therapy, and how these principles can be utilized in pharmacy practice. Prereq: PHR 805, PHR 340, PHR 337.

**PHR 852 PHARMACOTHERAPEUTICS: CARDIOPULMONARY AND RENAL SYSTEMS.** (5)
An extension of PHR 851 dealing primarily with cardiovascular, renal and respiratory pathologies and the agents used in their treatment. Prereq: PHR 851.

**PHR 853 PHARMACOTHERAPEUTICS: ENDOCRINE SYSTEMS.** (4)
A study of the physiology, pathology and therapeutics of the endocrine system. A discussion of principles of toxicology and the treatment of exposure to select chemicals is included. Prereq: PHR 337; coreq: PHR 851.

**PHR 854 PHARMACOTHERAPEUTICS: NUTRITIONAL AND DERMATOLOGIC SYSTEMS.** (3)
An extension of PHR 851, concentrating on the physiology and major pathologies of the gastrointestinal and dermatologic systems, the agents used in their treatments, and the problems and treatments of nutritional and hematologic disorders. Prereq: PHR 851.

**PHR 856 CHEMOTHERAPEUTICS.** (3)
An extension of PHR 851, concentrating on infectious diseases and agents used in their treatment. Prereq: PHR 850; coreq: PHR 806.

**PHR 865 DISEASE PROCESSES I.** (5)
An interdisciplinary course in which in-depth study of specific disease processes, especially the quantifiable, pathognomonic parameters permit the student to develop a unique understanding of the pathologic factors influencing clinical drug use. Prereq: PHR 849,852, 853, 854 and 856.

**PHR 866 APPLIED THERAPEUTICS I.** (5)
An in-depth integration of patient factors including age, history, concurrent disease states, medications, allergies, renal and hepatic function, and drug product factors including bioavailability, pharmacokinetics, efficacy, toxicity, risk to benefit ratios, and cost in the application of drug therapy to specific patient situations. Also included are discussions of the prominent considerations relative to patient education about their disease and therapy. Prereq: PHR 849, 852, 853, 854 and 856.

**PHR 867 DISEASE PROCESSES II.** (4)
A continuation of PHR 865. Prereq: PHR 865.

**PHR 868 APPLIED THERAPEUTICS II.** (5)
A continuation of PHR 866, including a presentation of physical assessment techniques necessary for monitoring drug response. Prereq: PHR 866.

**PHR 870 CLINICAL ORIENTATION CLERKSHIP.** (8)
This course acquaints the student with the techniques and various considerations involved in the diagnosis and evaluation of disease states and their treatment. It affords the student opportunity to gain an appreciation of the scientific, social, emotional and psychological aspects of illness and provides the student with ability to work with other health professionals. Offered for letter grade credit only (A, B, C, D, E, I). Prereq: PHR 812, 848, 849, 850, 853, 854 and 856.

**PHR 872 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES.** (4)
A study of various nonprescription pharmaceuticals, medical and surgical supplies, and appliances commonly found in community pharmacy practice. Their evaluation, rational use and therapeutic efficacy will be stressed. The use of home remedies and their limitations in the treatment of minor ailments will be considered. Prereq: PHR 850, PHR 851, PHR 853; coreq: PHR 848, 849, 852, and 854.

**PHR 874 DRUG LITERATURE EVALUATION.** (3)
This course apprises the student of the pharmacological and toxicological principles and techniques employed in the clinical evaluation of drugs and enables the student to use more effectively the clinical literature. Prereq: PHR 852, PHR 853, PHR 854 and PHR 856.

**PHR 875 CLINICAL PHARMACOKINETICS.** (4)
Application of pharmacokinetic principles to drug dosing on an individual patient basis, with emphasis on those drugs which have narrow therapeutic ranges or have unique pharmacokinetic or pharmacologic properties. Prereq: PHR 806 or consent of instructor.

**PHR 881 PHARMACY PRACTICE EXTERNSHIP.** (8)
This externship is designed to provide the student with a faculty-directed, integrated experience in the provision of pharmaceutical services in a variety of patient care settings under the supervision of selected pharmacy practitioners on a one-to-one basis of student to practitioner. This experience includes participation in traditional practice settings and may involve participating in new and innovative pharmacy practice models. The course consists of two four-week rotations which are full-time (not less than 40 hours per week) directed externship experiences. Offered on a pass/fail basis only. Prereq: PHR 849, 850, 853, 854, 856, permission of instructor, and minimum 2.0 pharmacy cumulative GPA.

**PHR 882 PHARMACY PRACTICE CLERKSHIP: MEDICINE.** (8)
A clinical experience in the use of drugs in the diagnosis, treatment and management of diseases. Experience will be obtained in general internal medicine. Emphasis is placed on the rationale of drug therapy. Prereq: PHR 868, 874, 875 and 867 or 870 and a 2.0 pharmacy cumulative GPA.

**PHR 883 PHARMACY PRACTICE CLERKSHIP: AMBULATORY CARE.** (8)
A clinical experience in the use of drugs in the treatment of diseases in ambulatory patients. Experience will be obtained in ambulatory care settings. Prereq: PHR 868, 874, 875 and 867 or 870 and a 2.0 pharmacy cumulative GPA.

**PHR 884 PHARMACY PRACTICE CLERKSHIP: SPECIALTY AREAS.** (8)
A clinical experience in the use of drugs in the treatment of diseases encountered in specialized areas. Areas in which experience may be obtained include (but are not limited to) pediatrics, surgery, intensive care and psychiatry. May be repeated to a maximum of 24 credits. Prereq: PHR 868, 874, 875 and 867 or 870 and a 2.0 pharmacy cumulative GPA.

**PHR 885 PHARMACY PRACTICE EXTERNSHIP ELECTIVE.** (6)
This elective externship is designed to provide the student with additional faculty-directed, integrated experience in the provision of pharmaceutical services in a variety of patient care settings under the supervision of selected pharmacy practitioners on a one-to-one basis of student to practitioner. This experience includes participation in new and innovative pharmacy practice models as well as in traditional practice settings. The rotation is six weeks of full-time (not less than 40 hours per week) directed externship experience. Offered on a pass-fail basis only. Prereq: PHR 849, 850, 853, 854, 856, permission of instructor, and minimum 2.0 pharmacy cumulative GPA.

**PHR 886 PHARMACY PRACTICE CLERKSHIP.** (4)
A structured set of rotations designed to provide clinical experience in the use of drugs for the treatment of diseases. Students will be assigned to a variety of patient care areas on a full-time basis under the supervision of a faculty preceptor. Emphasis is placed on the active participation of the student in the provision of contemporary pharmaceutical care in different environments. The experiences provide the opportunity to integrate material presented in previous courses and stress outcome oriented decision making in clinical situations regarding drug therapy. May be repeated to a maximum of 40 credits. Prereq: PHR 867, 868, 874, 875, minimum 2.0 pharmacy GPA, required immunizations.

**PHR 890 CLINICAL PHARMACY SEMINAR.** (1)
Topics in areas of clinical pharmacy concepts and principles of practice emphasizing the technical and professional knowledge and abilities required for involvement of the pharmacist in the health care team. May be repeated to a maximum of two credits. Prereq: Admission to the Doctor of Pharmacy program.

**PHR 892 CLINICAL DRUG COMMUNICATIONS.** (1-5)
The course is designed as a natural continuation of PHR 874 and serves the specific purpose of providing instruction and experience of such a nature and quality as to promote the professional role of the pharmacist in the communication of clinical pharmacology data and therapeutics information. May be repeated to a maximum of 10 credits. Lecture, one hour; laboratory, four-16 hours.

**PHR 895 INDEPENDENT PROBLEMS IN CLINICAL PHARMACY.** (1-3)
Selected problems in patient care, drug information, pharmacy administration, and pharmaceutical technology as related to pharmaceutical services. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHR 896 INDEPENDENT PROBLEMS IN PHARMACY.** (1-3)
Selected problems pertaining to the various aspects of pharmacy which may include such problems as pharmaceutical procedures, pharmaceutical formulations, pharmaceutical history, and pharmaceutical economics. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PHR 911 PHYSIOLOGICAL BASIS FOR THERAPEUTICS I.** (4)
Integrated concepts of human organ system functions with particular emphasis on the physiology of the central and autonomic nervous system, the cellular and molecular mechanisms of neurotransmission and transduction and the response of target issues. The course includes an introduction to the pathophysiology of each system and the pharmacodynamics of therapeutic agents as a framework for discussion. Variable mixtures of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 912 PHYSIOLOGICAL CHEMISTRY AND MOLECULAR BIOLOGY I.** (3)
The first of a two course sequence covering integrated concepts of human biochemistry from a physiological viewpoint, functional group chemistry essential to biology, key structural and functional relationships of the biomolecules in living systems, energy metabolism emphasizing inter organ relationships and an in depth discussion of information storage and transfer. The course includes an introduction to common metabolic diseases and the therapeutic agents used in those diseases as a framework for discussion. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 913 PHARMACOLOGICAL BASIS OF THERAPEUTICS: ANTIBIOTICS.** (3)
A[1]study of the pathophysiology and microbiology of infectious diseases concentrating on the pharmacology of the therapeutic agents (antibiotics) used to treat those diseases, including discussions of their rational use. Variable mixture of lectures, discussions and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 914 BASIC PRINCIPLES OF PHARMACEUTICAL SCIENCE: DRUG DESIGN.** (3)
The first course of a three semester sequence dealing with the principles of medicinal chemistry and pharmaceutics. Brief descriptions of the drug development process, routes of administration, dosage forms, literature and biopharmaceutics followed by discussions of the design of molecules to produce safe and effective therapeutic responses in humans and the properties of drug molecules which are important in their formulation into drug products. Variable mixture of lectures, discussions and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 916 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES I.** (2)
A study of various nonprescription pharmaceuticals, medical and surgical supplies and appliances commonly found in ambulatory pharmacy practice sites, their rational use and therapeutic efficacy. Decision making skills for ambulatory patient triage are emphasized. The use of home remedies and their limitations in the treatment of minor ailments is considered. Variable mixture of lecture, discussions and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 919 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE I.** (4)
A continuously evolving integration of the administrative, legal, ethical, communicative, problem solving, social, behavioral and practical skills required for contemporary and future pharmacy practice often utilizing principles presented in the co-requisite courses as the introductory framework for discussion or the basis for the problem cases to be covered. In addition, current topics of debate and controversial issues within health care in general and pharmaceutical care in particular are studied. This course is the initial offering in a sequence designed to balance the theoretical perspectives of the professional aspects of pharmacy with practical applications while simultaneously creating an environment to nurture the caring aspects of the profession. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development. Coreq: Required PHR 91X series courses.

**PHR 921 PHYSIOLOGICAL BASIS FOR THERAPEUTICS II.** (4)
A continuation of PHR 911 covering integrated concepts of human organ system functions with particular emphasis on the physiology of the cardiovascular, renal, pulmonary and endocrine systems. The course includes an introduction to the pathophysiology of each system and the pharmacodynamics of prototype therapeutic agents as a framework for discussion. Variable mixture of lecture, group discussions and independent study. Prereq: PHR 911 and admission to the first year, College of Pharmacy.

**PHR 922 PHYSIOLOGICAL CHEMISTRY AND MOLECULAR BIOLOGY II.** (3)
A continuation of PHR 912. Variable mixture of lectures, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy and PHR 912.

**PHR 923 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: NUTRITION, HEALTH PROMOTIONS.** (3)
Consideration of the role of the pharmacist in health promotion and disease prevention including both pharmacologic and non-pharmacologic methods. Major problems of nutrition and certain metabolic/chronic disorders for which nutrition plays a pivotal role will be addressed including hypertension, cancer, and eating disorders. In addition the pharmacology of drugs affecting the gastrointestinal tract and drugs used to treat common gastrointestinal problems are discussed. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 924 BASIC PRINCIPLES OF PHARMACEUTICAL SCIENCE: DRUG FORM DESIGN.** (3)
This is the second course in a three semester sequence dealing with the principles of medicinal chemistry and pharmaceutics. The application of chemical kinetics to drug stability and the application of physical-chemical principles to the formulation of pharmaceutical solutions and solids are discussed. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy and PHR 914.

**PHR 926 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES II.** (2)
A continuation of PHR 916. Variable mixture of lecture, group discussions and independent study. Prereq: Admission to the first year, College of Pharmacy and PHR 916.

**PHR 929 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE II.** (4)
A continuation of PHR 919 completing skill development in resolving simple patient/drug problems and including year one comprehensive skill assessment. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development. Coreq: Required PHR 92X series courses.

**PHR 931 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: NERVOUS SYSTEM.** (4)
A study of human disease processes and rational pharmacotherapeutics relating to the autonomic central and peripheral nervous systems and substances of abuse. Emphasis is placed on the principles of pathophysiology, pharmacology, toxicology and therapeutics, the incorporation of these principles in the clinical application of modern drug therapy, and how these principles can be utilized in pharmacy practice. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the second year, College of Pharmacy.

**PHR 932 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: IMMUNOLOGY AND BIOTECHNOLOGY.** (3)
A study of the immune system, immunopathologies and select autoimmune diseases and their treatment. Includes a discussion of immunizations, immunology of cancer, neoplasias and an introduction to antineoplastic therapy. The course concludes with a discussion of biotechnology and its application to the production and use of pharmaceuticals, diagnostic agents and advanced therapies. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the second year, College of Pharmacy.

**PHR 933 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: ENDOCRINE SYSTEMS.** (3)
A study of the pathophysiology of the major disorders affecting the endocrine system concentrating on the pharmacology of the therapeutic agents used to treat those disorders, including discussions of the rational use of endocrine agents and their congeners in the treatment of non-endocrine diseases. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the second year, College of Pharmacy.

**PHR 937 INTRODUCTION TO PHARMACOKINETICS.** (1)
Basic elements of the pharmacokinetic principles of clearance, volume of distribution, half-life and therapeutic range. Intended to prepare the student to understand issues related to pharmacokinetics. The student is expected, early in the program, to appreciate the applications and utility of pharmacokinetics. Variable mixture of lecture, group discussion and individual study. Prereq: Admission to the first year, College of Pharmacy.

**PHR 939 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE III.** (6)
A continuation of PHR 929 concentrating on initial skill development in resolving moderately complex patient/drug related problems. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development. Coreq: Required PHR 93X series courses.

**PHR 941 PHARMACOLOGICAL BASIS FOR THERAPEUTICS: CARDIOPULMONARY AND RENAL SYSTEMS.** (5)
A study of the pathophysiology of the major disorders affecting the cardiovascular, renal and respiratory system concentrating on the pharmacology of the therapeutic agents used to treat those disorders. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the second year, College of Pharmacy and PHR 931.

**PHR 944 BASIC PRINCIPLES OF PHARMACEUTICAL SCIENCE: NEW AND NOVEL DOSAGE FORMS.** (3)
The last course in a medicinal chemistry and pharmaceutics sequence consisting of a discussion of in vivo testing to establish the bioequivalence of drug products, the application of physical-chemical principles to the formulation of pharmaceutical disperse systems, and a survey of modern drug delivery systems with a review of the scientific principles upon which they are based. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the second year, College of Pharmacy.

**PHR 947 APPLIED BIOPHARMACEUTICS AND PHARMACOKINETICS.** (4)
The theoretical and practical considerations of the processes of drug absorption (including dosage formulation), distribution, metabolism and excretion and the mathematical models that describe these events including the calculation of dosage regimens for patients with problems ranging from simple to complex. A variable mixture of computer-assisted learning, formal lecture, interactive lecture and problem-based learning laboratory experiences. Prereq: Admission to the second year, College of Pharmacy and PHR 937.

**PHR 948 INTRODUCTORY PHARMACY PRACTICE CLERKSHIP.** (4)
An introductory experience in the clinical use of drugs in the diagnosis, treatment and management of diseases. Experiences may involve on call and evening/weekend responsibilities. Offered on a pass/fail basis only. Laboratory, 40 or more hours per week. Prereq: Successful completion of required courses in the 930 series and consent of instructor.

**PHR 949 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE IV.** (5)
A continuation of PHR 939 completing skill development in resolving moderately complex patient/drug related problems and including a year two comprehensive skill assessment. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development. Coreq: Required PHR 94X series courses.

**PHR 951 INTEGRATED THERAPEUTICS I.** (7)
Integrated advanced application of pharmaceutical sciences to patient care following an organ system/disease state approach and emphasizing the development and implementation of patient-specific pharmacotherapeutic treatment plans. Therapeutic areas are integrated with corresponding applied pharmacokinetic (e.g. cardiovascular pharmacotherapy with pharmacokinetics of digitalis glycosides and antiarrhythmics). Basic science considerations (usually in pharmacology, biochemistry or pharmaceutics) are incorporated within each area to reinforce basic principles and their importance in drug therapy. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the third year, College of Pharmacy; coreq: PHR 952.

**PHR 952 DISEASE PROCESSES I.** (3)
A comprehensive study of disease following an organ system approach and emphasizing the etiology, pathogenesis and clinical significance of disease processes with a special emphasis on disease processes that are amenable to drug treatment, influence drug disposition and/or are a result of complications of drug therapy. Variable mixture of lecture, group discussion, independent study and autopsy laboratory. Prereq: Admission to the third year, College of Pharmacy.

**PHR 959 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE V.** (7)
A continuation of PHR 949 concentrating on initial skill development in resolving very complex patient/drug related problems. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development with primary emphasis on problem based learning and further independent learning skill development. Coreq: Required PHR 95X series courses.

**PHR 961 INTEGRATED THERAPEUTICS II.** (7)
A continuation of PHR 951 Integrated Therapeutics I. Variable mixture of lecture, independent study and group discussion. Prereq: Admission to the third year, College of Pharmacy, PHR 951 and PHR 952; coreq: PHR 962.

**PHR 962 DISEASE PROCESSES II.** (3)
A continuation of PHR 952 Advanced Pathophysiology I. Variable mixture of lecture, group discussion, independent study and autopsy sessions. Prereq: Admission to the third year, College of Pharmacy and PHR 952.

**PHR 969 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE VI.** (7)
A continuation of PHR 959 concentrating on skill development in resolving very complex patient/drug related problems and including a year three comprehensive skill assessment. Variable mixture of lecture, seminar, group discussion, individual study, laboratory exercises, public service projects and portfolio development with primary emphasis on problem based learning and independent learning skill development. Coreq: Required PHR 96X series courses.

**PHR 988 PHARMACY PRACTICE CLERKSHIP.** (4)
A clinical experience in the use of drugs in the diagnosis, treatment and management of diseases. Emphasis is placed on a rationale of drug therapy, the provision of contemporary pharmaceutical care services and functioning as a member of an interdisciplinary health care team. Experiences will be obtained in a variety of areas and may involve on call and evening/weekend responsibilities. May be repeated to a maximum of 44 credits. Laboratory, 40 or more hours per week. Prereq: Admission to the fourth year, College of Pharmacy and permission of instructor.

**PHR 997 ADVANCED CLINICAL PHARMACOKINETICS AND PHARMACODYNAMICS.** (2)
Advanced topics in clinical pharmacokinetics and dynamics theory and practice. Designed for students interested in careers in clinical pharmacokinetics, service, research, industry or education. Variable mixture of lecture, group discussion and independent study. Prereq: Admission to the first year, College of Pharmacy and PHR 947.

**PHR 998 PHARMACY PRACTICE CLERKSHIP: MENTORING.** (4)
A continuation of PHR 988 but with the additional responsibilities of serving, with the preceptor, as part of a team mentoring students in introductory clerkship experiences and learning the introductory principles of serving as a preceptor. May be repeated to a maximum of eight credits. Laboratory, 40 or more hours per week. Prereq: Successful completion of 24 credits of PHR 988 and permission of instructor.

## PHY Physics

**Note:** It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "consent of instructor."

**PHY 105 PHYSICS AND ASTRONOMY TODAY.** (1)
This course is intended for freshmen and others who wish to find out what physics is and how it relates to other fields of study. It is especially useful for physics majors or for those considering physics as a major or minor. One demonstration lecture per week presented by various members of the physics faculty. May only be taken on a pass/fail basis.

**PHY 130 PHYSICS OF ENERGY.** (3)
Energy sources, such as fossil fuels; nuclear, solar and hydro electric power are discussed in the context of the basic laws of physics which govern their uses and limitations. Concepts covered include kinetic and potential energy, heat, radiation, and mass-energy equivalence. Credit is not given to students who already have credit for PHY 201, 211, or 231.

**PHY 140 MUSIC ACOUSTICS.** (3)
An introduction to certain physical laws governing sound, sources of sound and mediums through which sound travels. Included are acoustical explanations of how musical instruments produce sounds and their characteristic timbres. (Same as MUS 140.)

**PHY 151 INTRODUCTION TO PHYSICS.** (3)
A lecture demonstration course covering the mechanics of solids, liquids, gases, heat, and sound. Credit is not given to students who already have credit for PHY 201, 211 or 231. Prereq: Two years of high school algebra or MA 108R.

**PHY 152 INTRODUCTION TO PHYSICS.** (3)
A lecture demonstration course covering electricity, magnetism, optics, atomic and nuclear physics. Credit is not given to students who already have credit for PHY 203, 213 or 232. Prereq: Two years of high school algebra or MA 108R.

**PHY 153 LABORATORY FOR ELEMENTARY AND MIDDLE SCHOOL TEACHERS.** (1)
Laboratory to accompany PHY 151-152 with experiments and exercises designed especially for students preparing to be elementary and middle school teachers. Laboratory, two hours per week. Prereq: PHY 151; coreq: PHY 152.

**PHY 201 GENERAL PHYSICS.** (4)
Same as PHY 211, but without laboratory. Credit is not given to students who already have credit for PHY 211 or 231. Prereq: A working knowledge of algebra and basic trigonometry as obtainable, for example, in MA 109 and MA 112 or demonstrated by an ACT math score of at least 25.

**PHY 203 GENERAL PHYSICS.** (4)
Same as PHY 213, but without laboratory. Credit is not given to students who already have credit for PHY 213 or 232. Prereq: PHY 201.

**PHY 211 GENERAL PHYSICS.** (5)
A general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for PHY 231 and 241. Prereq: A working knowledge of algebra and basic trigonometry as obtainable, for example, in MA 109 and MA 112 or demonstrated by an ACT math score of at least 25.

**PHY 213 GENERAL PHYSICS.** (5)
Continuation of PHY 211, covering electricity and magnetism, optics, and modern physics. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for 232 and 242. Prereq: PHY 211 or equivalent.

**PHY 231 GENERAL UNIVERSITY PHYSICS.** (4)
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture, three hours; recitation, one hour. Prereq or concur: MA 114.

**PHY 232 GENERAL UNIVERSITY PHYSICS.** (4)
An advanced general course covering electricity, magnetism, and optics. Lecture, three hours; recitation, one hour. This course is prerequisite to a significant number of courses in this and related areas of study. Prereq: PHY 231; concur: MA 213.

**PHY 241 GENERAL UNIVERSITY PHYSICS LABORATORY. (1)**
An advanced general laboratory course with experiments on the mechanics of solids, liquids, and gases; and on heat and sound. Prereq or concur: PHY 231.

**PHY 242 GENERAL UNIVERSITY PHYSICS LABORATORY. (1)**
An advanced general laboratory course with experiments on electricity, magnetism, and light. This course is prerequisite to other courses in physics and related areas of study. Prereq: PHY 241; concur: PHY 232.

**PHY 308 PRINCIPLES OF OPTICS. (3)**
A lecture and problems course covering the basic phenomena of geometrical and physical optics. Topics include electromagnetic waves, the nature of light in media, optical systems, interference, diffraction and polarization. Prereq: PHY 232 or 213; concur: MA 214, and PHY 242 (unless completed PHY 213) or consent of instructor.

**PHY 361 PRINCIPLES OF MODERN PHYSICS. (3)**
An introduction to the principles of special relativity, elementary concepts of quantum mechanics and selected topics in atomic and nuclear physics. Prereq: MA 114, PHY 211 or 231, PHY 213 or 232. Note: If necessary, PHY 213 or 232 may be taken concurrently with PHY 361.

**PHY 395 INDEPENDENT WORK IN PHYSICS. (1-3)**
Students may select an approved topic for study under the direction of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

**PHY 401G SPECIAL TOPICS IN PHYSICS AND ASTRONOMY FOR ELEMENTARY AND HIGH SCHOOL TEACHERS. (2-4)**
Selected topics in physics and astronomy of special interest to teachers will be discussed. When the course is offered, a specific title with specific credits, the number of hours in lecture-discussion and laboratory will be announced. Lecture/discussion, two-four hours; laboratory, zero-four hours. May be repeated to a maximum of eight credits. Prereq: Open only to elementary school and/or high school teachers; consent of instructor.

**PHY 402G ELECTRONIC INSTRUMENTATION AND MEASUREMENTS. (3)**
Elementary laboratory treatment of electronic circuits. Topics will include AC circuits, filters, simple circuits using transistors and other semiconductor devices, simple treatment of operational amplifiers, and an introduction to digital circuits. Lecture, two hours; laboratory, three hours. Prereq: EE 305 or PHY 242 or consent of instructor. (Same as EE 402G.)

**PHY 404G MECHANICS. (3)**
A lecture and problem course covering the fundamental laws of mechanics. Newton's Laws, statics and dynamics of a particle and rigid bodies, and oscillatory motion. Prereq: PHY 232, 242 or 213; concur: MA 214.

**PHY 416G ELECTRICITY AND MAGNETISM. (3)**
A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232, 242 or 213; MA 213.

**PHY 417G ELECTRICITY AND MAGNETISM. (3)**
A continuation of PHY 416G. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416G.

**PHY 422 COMPUTATIONAL PHYSICS LABORATORY (3)**
An introductory laboratory and lecture course covering the application of numerical methods to the solution of problems encountered in mechanics and electrostatics. Lecture, one hour; laboratory, four hours per week. Prereq: PHY 404G or equivalent.

**PHY 472G INTERACTION OF RADIATION WITH MATTER. (3)**
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as RM 472G.)

**PHY 477 PHYSICS AND ASTRONOMY SEMINAR. (1)**
Reports and discussion on student research projects and research topics from the literature of physics and astronomy. May be repeated to a maximum of two credits. Prereq: PHY 361, COM 199 or equivalent.

**PHY 504 ADVANCED MECHANICS. (3)**
A continuation and extension of PHY 404G. Includes dynamics of a particle, rigid bodies, Lagrange's equations, constrained motions, and oscillations. Prereq: PHY 404G, MA 214.

**PHY 506 METHODS OF THEORETICAL PHYSICS I. (3)**
The course and its sequel (MA/PHY 507) are designed to develop, for first-year graduate students, familiarity with the mathematical tools useful in physics. Topics include curvilinear coordinates, infinite series, integrating and solving differential equations of physics, and methods of complex variables. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: PHY 404G or equivalent. (Same as MA 506.)

**PHY 507 METHODS OF THEORETICAL PHYSICS II. (3)**
Continuation of MA/PHY 506. Fourier and Laplace Transforms, the special functions (Bessel, Elliptic, Gamma, etc.) are described. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: MA/PHY 506. (Same as MA 507.)

**PHY 508 OPTICS. (3)**
A lecture and problems course covering the basic phenomena of geometrical and physical optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, double refraction, and the theory of selected optical instruments. Prereq: PHY 417G, PHY 361, MA 214.

**PHY 520 INTRODUCTION TO QUANTUM MECHANICS. (3)**
A lecture and problem course providing an introduction to quantum mechanics at the undergraduate level. Primary emphasis is on the Schrodinger equation, and its applications. Prereq: PHY 361, MA 214.

**PHY 522 HEAT AND THERMODYNAMICS. (3)**
A lecture and problem course stressing some of the fundamental principles of heat phenomena, the laws of thermodynamics, equations of state for ideal and real gases, continuity, derivation of thermodynamic relations. Prereq: PHY 361 and MA 214.

**PHY 524 AND 525 SOLID STATE PHYSICS. (3 ea.)**
Introductory solid state physics with emphasis on the properties of electrons in crystals; crystal structure, crystal diffraction, reciprocal lattice, lattice vibrations and phonons, free electron theory, energy bands in solids, semiconductors. Prereq: (For 524) PHY 520 or consent of instructor. PHY 525 is a continuation of PHY 524. Crystal binding; elastic constants and elastic waves; superconductivity; ferromagnetism; optical and transport properties of metals, semiconductors, insulators, and interfaces. Prereq: (For 525) PHY 524.

**PHY 530 EXPERIMENTAL PHYSICS: OPTICS AND SPECTROSCOPY. (2)**
An advanced laboratory dealing with the wave nature of light, optical systems, interference, diffraction, polarization and spectroscopy. Prereq: PHY 308 or PHY 508.

**PHY 535 EXPERIMENTAL PHYSICS: ATOMIC AND NUCLEAR. (3)**
A combined lecture and laboratory course in which students both learn the statistical methods by which observational data are analyzed and repeat many of the experiments which established the quantum-mechanical behavior of atomic and nuclear systems. Experiments include the quantization of charge, the energy levels of atomic systems, the wave nature of matter, Compton scattering from electrons, X-ray diffraction, Planck constant. Lecture, one hour; laboratory, four hours per week. Prereq: PHY 361.

**PHY 545 RADIATION HAZARDS AND PROTECTION. (3)**
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as RM/RAS 545.)

**PHY 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)**
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as RM/RAS 546.)

**PHY 554 FUNDAMENTAL ATOMIC PHYSICS. (3)**
Topics covered include electromagnetic radiation, atomic spectra and their interpretation in terms of atomic models, the Zeeman and Stark effects. Prereq: PHY 520.

**PHY 555 FUNDAMENTAL NUCLEAR PHYSICS. (3)**
Topics covered include nuclear systematics, the nucleon-nucleon-interaction, nuclear models, radioactivity, nuclear reactions, fission and fusion. Prereq: PHY 520.

**PHY 556 FUNDAMENTAL PARTICLE PHYSICS. (3)**
Introduction to elementary particle physics. Topics include: particle interactions and families, the quark model, symmetries and conservation laws, particle reactions and decays, quark dynamics, and elements of quantumchrodynamics and electroweak interactions. Prereq: PHY 520.

**PHY 567 INTRODUCTION TO LASERS AND MASERS. (3)**
Basic principles of laser action, atomic transitions; population inversion; two-and three-level systems; optical resonators; pumping methods; applications. Prereq: Engineering upper division status or consent of instructor. (Same as EE 567.)

**#PHY 570 SEMINAR ON TEACHING PHYSICS. (1)**
A seminar course for teaching assistants focused on developing the art and science of teaching physics. Journal articles, books and other texts will be studied to serve as sources of discussion about the teaching and learning activities in the Department of Physics and Astronomy. Prereq: Consent of instructor.

**#PHY 571 SEMINAR ON TEACHING PHYSICS LABORATORIES. (1)**
A seminar course for teaching assistants focused on developing the art and science of teaching physics laboratories. Journal articles, books and other texts will be studied to serve as sources of discussion about the teaching and learning activities in the laboratory classes in the Department of Physics and Astronomy. Prereq: Consent of instructor.

**PHY 591 ASTROPHYSICS I - STARS. (3)**
Structure of the universe - an overview: hierarchy of objects, the distance ladder. Stellar structure: hydrostatic equilibrium, energy transport, nuclear energy generation, equilibrium solutions. Stellar evolution: nucleosynthesis, evolution off the main sequence, final stages of stellar life - white dwarfs, supernovae, neutron stars and black holes. Binary stellar systems. Prereq: PHY 361, PHY 416G, PHY 417G. (Same as AST 591.)

**PHY 592 ASTROPHYSICS II - THE GALAXY. (3)**
Interstellar matter: gas and dust, interstellar reddening, absorption lines, 21 cm observations. Phases of the interstellar medium: HII regions, atomic and molecular clouds. Star formation. Stellar populations. Galactic structure and dynamics: the galactic nucleus, spiral structure, rotation curve, dark matter. Prereq: PHY 591. (Same as AST 592.)

**PHY 600 SELECTED TOPICS IN ADVANCED PHYSICS. (2-3)**
Topics of an advanced and specialized nature such as the theory of angular momentum, topics in advanced theoretical nuclear physics, topics in advanced statistical mechanics. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

**PHY 611 ELECTROMAGNETIC THEORY I. (3)**
A lecture and problem course treating electrostatics, boundary conditions, potential problems, energy in electric and magnetic fields, magnetic materials and Maxwell's equations. Prereq: PHY 416G; MA 214.

**PHY 613 ELECTROMAGNETIC THEORY II. (3)**
Continuation and extension of PHY 611. Includes theory of electromagnetic waves and applications to optical phenomena and radiation. Special theory of relativity and the covariant treatment of Maxwell's equations will be discussed. Prereq: PHY 611.

**PHY 614 QUANTUM MECHANICS I. (3)**
A lecture and problem course dealing with the description of quantum systems in the forms of wave mechanics, matrix mechanics and state vectors. Also includes angular momentum and its addition, and approximation methods for bound states. Prereq: PHY 520.

**PHY 615 QUANTUM MECHANICS II. (3)**
Continuation of PHY 614 covering time dependent perturbation theory, symmetry and invariance principles, and elementary scattering theory including the method of partial waves. Prereq: PHY 614.

**PHY 624, 625 THEORY OF THE SOLID STATE. (3 ea.)**
A lecture and problem course covering the fundamental theories of the structure and properties of solids, including lattice dynamics, electron propagation, electrical, thermal and optical properties. Prereq: PHY 524, 525 and 614.

**PHY 629 NUCLEAR PHYSICS. (3)**
A lecture and problem course dealing with the structure of atomic nuclei, nuclear processes, and nuclear radiations. Topics include nuclear shell structure, nuclear properties, inter-nucleon forces, nuclear binding energies, and nuclear reactions. Prereq: PHY 614.

**PHY 630 TOPICS IN NUCLEAR AND INTERMEDIATE ENERGY PHYSICS (Subtitle required). (3)**
A lecture-problem course alternately dealing with advanced topics in nuclear and intermediate energy physics. Nuclear physics topics include theories of transition rates and moments, the formal theory of nuclear reactions, microscopic models of nuclear matter, and collective and single particle aspects of nuclear structure. Topics in intermediate energy physics include photonuclear reactions, pion absorption and scattering, the role of spin in nucleon scattering, and the relativistic description of scattering and reactions. (May be repeated to a maximum of six hours when taken under different subtitles.) Prereq: PHY 629.

**PHY 632 STATISTICAL MECHANICS. (3)**
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522, 604.

**PHY 639 PHYSICAL PROCESSES IN ASTROPHYSICS. (3)**
A lecture and problem course covering the physical processes encountered in astrophysics. The topics covered will include micro-physical processes in stellar atmospheres and the interstellar medium, high-energy astrophysics, and basic hydrodynamics and shock waves. Prereq: PHY/AST 592 or consent of instructor. (Same as AST 639.)

**PHY 640 GALAXIES AND COSMOLOGY. (3)**
A course covering extra-galactic astronomy and cosmology. Topics include properties of galaxies, active galaxies and quasars. The standard big bang model of the universe will be discussed in detail, including observational cosmology, nucleosynthesis in the early universe and formation of large scale structure. Prereq: PHY/AST 592 or consent of instructor. (Same as AST 640.)

**PHY 651 ATOMIC PHYSICS. (3)**
A lecture and problem course dealing with advanced topics in atomic physics, including atomic structure, spectra, and interactions of atoms with charged particles and electromagnetic fields. Topics include Rydberg atoms, ionization processes, electron correlations, laser techniques and general theoretical methods. Prereq: PHY 554, 611 and 614.

**PHY 716 ADVANCED QUANTUM MECHANICS. (3)**
A continuation of PHY 615. Topics covered will include the relativistic wave equations, second quantization, quantum electrodynamics. Prereq: PHY 615.

**PHY 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PHY 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PHY 756 PARTICLE PHYSICS.** (3)
A lecture-problem course on advanced topics in elementary particle physics. Topics include the quark model and group theory, chiral symmetry of the strong interaction, the parton model and scaling, quantum chromodynamics, electroweak theory, grand unification, and the renormalization group. Prereq: PHY 716.

**PHY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PHY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PHY 770 COLLOQUIUM.** (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of eight credits.

**PHY 781 INDEPENDENT WORK IN PHYSICS.** (3)
May be repeated to a maximum of 12 credits.

**PHY 790 RESEARCH IN PHYSICS.** (3)
May be repeated to a maximum of six credits.

**PHY 791 RESEARCH IN PHYSICS.** (5)
May be repeated to a maximum of 10 credits.

## PLS Plant and Soil Science

**#PLS 210 THE LIFE PROCESSES OF PLANTS.** (3)
This course is intended to provide a basic understanding of the natural products and processes that shape the nature of modern plants, and govern their interactions with the environment and characteristics unique to plants, and develop a basic understanding of how these plant attributes relate to oganismic function. Emphasis will be placed on exploring the nature of the major plant biomes of the Earth, their community dynamics, and how member plants compete for space and other resources. Development of optimal plant strategies for reproductive success, plant interaction with other living systems as well as abiotic factors and their defense from predation and attack will also be considered. (Same as BIO 210.)

**#PLS 220 INTRODUCTION TO PLANT IDENTIFICATION.** (3)
An introduction to the techniques used for plant identification based on over one hundred plants encountered in everyday life. Lecture, one hour; laboratory, four hours per week.

***PLS 366 FUNDAMENTALS OF SOIL SCIENCE.** (3)
Development of concepts and understanding of the properties and processes that are basic to the use and management of soils. Prereq: CHE 105, or consent of instructor.

***PLS 386 PLANT PRODUCTION SYSTEMS.** (4)
In-depth analysis of the underlying principles of plant production systems. Successful strategies, based on application of the principles developed by lecture and laboratory activities, will be discussed in either agronomic or horticultural contexts. Special attention will be given to minimizing the environmental impact of the plant production techniques employed. Prereq: PLS 366 or consent of instructor.

**#PLS 490 TOPICS IN PLANT AND SOIL SCIENCE.** (3)
A capstone course for majors in Plant and Soil Science to be taken near the conclusion of the student's academic career. The course provides the student the opportunity to integrate knowledge acquired in previous courses in the plant and soil science and support areas. Emphasis will be placed on problem solving, synthesizing and integrating information, critical thinking, group activities, and written and oral communication. Instructional methods may include formal lectures, laboratories or supervised individual research. The specific nature of the course depends upon the student's Area of Emphasis within the Plant and Soil Science major. All topics offered will be approved by the Undergraduate Education Committee in the Area of Emphasis. Prereq: Senior in Plant and Soil Science.

## PPA Plant Pathology

**PPA 400G PRINCIPLES OF PLANT PATHOLOGY.** (3)
To present students with the principles of plant pathology. The causes, effects, control and nature of plant diseases will be studied; the laboratory will expose students to common diseases and pathogens discussed in lecture. Emphasis will be given to diseases important in Kentucky. Lecture, two hours; laboratory, two hours. Prereq: One semester of botany (e.g. BIO 351) and microbiology (e.g. BIO 108/109) or consent of instructor.

**PPA 410 FOREST PATHOLOGY.** (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107 or BIO 351 or one equivalent semester of botany. (Same as FOR 410.)

**PPA 503 PLANT BIOCHEMISTRY.** (3)
The chemical constituents of plants, their interaction and the regulation of their interaction in key plant metabolic systems will be studied. Included in the course will be discussions of photosynthesis, nitrogen, nitrate reduction, nitrogen assimilation, plant growth and its regulation and the structure and metabolism of constituents unique to plants. Prereq: BCH 501 and 502 or equivalent or consent of instructor. (Same as BCH 503.)

**PPA 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS.** (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BIO/BCH/MI 601.)

**PPA 640 IDENTIFICATION OF PLANT DISEASES.** (3)
Recognition and identification of plant diseases and their causes and development. The course is designed to give students practical experience in dealing with a wide array of plant diseases, symptom expressions, causal agents and interactions with environmental factors encountered in the difficult task of identifying plant diseases. May be repeated to a maximum of nine credits. Lecture, one hour; laboratory, six hours. Prereq: PPA 400G or equivalent or consent of instructor.

**PPA 652 PLANT PATHOGENIC FUNGI.** (3)
An advanced study of plant pathogenic fungi with emphasis on diagnosis and identification of fungus plant diseases and inoculation and infection of plants. Lecture, two hours; laboratory, three hours. Prereq: PPA 640 or equivalent or consent of instructor.

**PPA 656 PLANT VIROLOGY.** (3)
Structure of viruses and viroids that cause plant diseases; replication and genome expression; biology of plant virus infections; ecology, epidemiology and control strategies for virus diseases. Prereq: PPA 400G and BCH 401G or consent of instructor.

***PPA 660 MOLECULAR AND PHYSIOLOGICAL DYNAMICS OF PLANT-MICROBE INTERACTIONS.** (4)
The course is intended to introduce the advanced student to the dynamic nature of plant-microbe interactions through diverse considerations of molecular genetic, physiological, biochemical and cytological aspects of plant diseases and symbioses. Prereq: AGR 360 or BIO 404G, BCH 401G, PPA 400G, or consent of instructor.

**PPA 661 GENETICS OF PLANT-MICROBE INTERACTIONS.** (3)
Genetics and molecular genetics of interactions between organisms. Primary emphasis will be plant interactions with fungi and bacteria. Areas of study will be: principles of interorganismal genetics and the gene-for-gene model; race-cultivar interactions; genetic determinants of disease in pathogenic relationships, and symbiosis in mutualistic relationships. Examples will include Flor's flax/flax rust system, plant transformation by *Agrobacterium*, mutualisms involving *Rhizobium*, and others. Prereq: AGR 562 or equivalent, or consent of instructor.

**PPA 695 EPIDEMIOLOGY AND MANAGEMENT OF PLANT DISEASES.** (3)
An examination of plant disease development at the population level, and of how management practices influence dynamics of pathogen populations and disease development. The spectrum of disease management practices will be considered, including host plant resistance, cultural practices, chemical and biological control. Technical, social, and economic aspects of plant disease management will be discussed. Lecture, two hours; laboratory, two hours. Prereq: PPA 400G.

**PPA 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PPA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PPA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PPA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PPA 770 PLANT PATHOLOGY SEMINAR.** (1)
Reports and discussion of problems and investigations of problems in plant pathology. May be repeated to a maximum of four credits.

**PPA 784 SPECIAL PROBLEMS IN PLANT PATHOLOGY.** (1-3)
May be repeated to a maximum of nine credits. Prereq: PPA 400G or equivalent or consent of instructor.

**PPA 794 RESEARCH IN PLANT PATHOLOGY.** (1-4)
May be repeated to a maximum of 12 credits. Prereq: PPA 400G or equivalent or consent of instructor.

## PS Political Science

**Note:** It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "consent of instructor."

**PS 101 AMERICAN GOVERNMENT.** (3)
A survey of national government and the political process in the United States, with emphasis on the Constitution, the President, Congress, and the judicial system.

**PS 202 ORIENTATION TO POLITICAL SCIENCE.** (1)
An introduction to topics studied by political scientists and the techniques used in these studies. Lectures, discussions and assigned readings will cover major fields of the discipline and will introduce students to research methods. The course will be offered Pass/Fail only.

**PS 210 INTRODUCTION TO EUROPEAN POLITICS: EAST AND WEST.** (3)
An introduction to the comparative study of political institutions, policy-making processes, citizen participation, and political outcomes in Eastern and Western European states.

**PS 212 CULTURE AND POLITICS IN THE THIRD WORLD.** (3)
This course analyzes the politics of selected states in Africa, Asia, and Latin America. Various bases of political cleavage and cooperation will be examined: ethnicity, language, social class and ideology. Cultural differences between Africa, Asia and Latin America will be identified and their political implications explored, as well as differences within geo-cultural areas.

**PS 235 WORLD POLITICS.** (3)
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and the conflicting interests in organizing world peace.

**PS 240 IDEOLOGY, POLITICAL CHANGE, AND CONTEMPORARY INDUSTRIAL SOCIETY.** (3)
A study of contemporary political ideas, social and political change, and their reciprocal relationship primarily in the advanced industrial societies. Ideology as a tool of both political action and analysis will be examined. Substantive discussion of political doctrines will deal with traditional and contemporary forms of liberalism, conservatism, socialism, anarchism and fascism, as well as current revolutionary movements and ideologies.

**PS 245 INTRODUCTION TO POLITICAL ANALYSIS.** (3)
Introduction to the basic knowledge of research methodology in political science; a review of methods of data collection; historical, quantitative and comparative techniques of analysis.

**PS 255 STATE GOVERNMENT.** (3)
An introduction to the institutions, political processes and policies of state governments, and the relationships of state governments with other levels of government in the United States.

**PS 271 INTRODUCTION TO POLITICAL BEHAVIOR.** (3)
The study of behavior in a political context; the analysis of basic behavioral concepts used in political science such as political roles, group behavior, belief systems, personality, power and decision-making.

**PS 280 ISSUES IN PUBLIC POLICY.** (3)
An examination of selected major public policy problems, focusing on their nature, political ramifications and alternate methods of dealing with them. Policies covered will vary from semester to semester, but will include such areas as poverty, health care, energy, education, race relations, environment, etc. Prereq: PS 101.

**PS 390 SEMINAR IN POLITICAL SCIENCE.** (1-3)
A topical seminar primarily for majors in political science and in related fields. May be repeated to a maximum of 12 credits in seminars of differing topics. Prereq: A standing of 3.0 in the student's major department or consent of instructor.

**PS 395 INDEPENDENT WORK.** (1-6)
Consent of instructor. May be repeated to a maximum of 12 credits. Prereq: A standing of 3.0 in political science courses.

**PS 399 INTERNSHIP IN GOVERNMENT.** (1-6)
This course is designed for students who are participating in a state, local or federal internship program with which the political science department is associated. The student must have approval of the department chairperson upon the recommendation of the Committee on Internship and Experiential Education to take the course, negotiate a learning contract with a departmental academic supervisor, and provide the department with a report or a paper on his internship. Pass/Fail only. May be repeated to a maximum of 12 credits.

**PS 411G COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES I.** (3)
A study of the governments of Britain and selected Commonwealth countries.

**PS 412G COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES II.** (3)
A study of the political systems of selected continental European countries with special attention to France and Germany.

**PS 417G SURVEY OF SUB-SAHARAN POLITICS.** (3)
A survey of sub-Saharan government and politics intended to give the student broad knowledge about the setting of African politics, precolonial African political systems, the political legacies of major European colonial powers, and problems of political development.

**PS 419G THE GOVERNMENTS AND POLITICS OF EASTERN ASIA.** (3)
A comparative analysis of the modern political experiences of China and Japan, exploring their responses to the West, the development of differing political elites in each country, and contemporary problems of the Chinese Communist and Japanese politics.

**PS 420G GOVERNMENTS AND POLITICS OF SOUTH ASIA.** (3)
A comparative analysis of contemporary political development in India, Pakistan, Bangladesh and Sri Lanka, with emphasis on political cultures, participation, institutions and the capabilities of these political systems.

**PS 421G GOVERNMENT AND POLITICS OF SOUTHEAST ASIA.** (3)
Study of the political processes, problems and behavior of the several states of Southeast Asia with emphasis on their chief determinants. The different patterns of political development will be examined. Lecture, three hours.

**PS 427G EAST EUROPEAN POLITICS.** (3)
This course is meant to provide an opportunity for advanced undergraduates and graduate students to (1) understand the historical, socioeconomic and philosophical context of the communist party states in Eastern Europe, (2) to learn who governs in Eastern Europe and the structures through which they rule, (3) to assess the "dynamics" of communist politics, i.e., factors contributing to political change vis-a-vis political continuity. Prereq: Junior or senior standing and instructor's written permission.

**PS 428G LATIN AMERICAN GOVERNMENT AND POLITICS.** (3)
A study of contemporary Latin American political institutions and of the dynamics of the Latin American political process.

***PS 429G GOVERNMENT AND POLITICS IN RUSSIA AND THE POST-SOVIET STATES.** (3)
Analysis of political development in the Soviet Union with emphasis on party-government relations, Communist ideology, and major approaches to the study of Soviet politics.

**PS 430G THE CONDUCT OF AMERICAN FOREIGN RELATIONS.** (3)
The formulation of American foreign policy from several analytic perspectives, with somewhat more emphasis on inputs and process than on substantive outputs. Prereq: PS 101 or consent of instructor.

**PS 431G NATIONAL SECURITY POLICY.** (3)
The organization and formulation of military policy; the theory and practice of deterrence; and the problems of disarmament and arms control. Prereq: PS 235 or consent of instructor.

**PS 433G POLITICS OF INTERNATIONAL ECONOMIC RELATIONS.** (3)
The course examines contending theoretical approaches to global political economy. These approaches are used to analyze various issues of global political economy, such as the international monetary system, multinational corporations, foreign aid, and trade.

**PS 436G INTERNATIONAL ORGANIZATION.** (3)
A study of the evolution of international organizations in the 20th Century. Examination of the increasing size, complexity, and diversity of contemporary global and regional international organizations. The role of international organizations in future world order.

**PS 437G DYNAMICS OF INTERNATIONAL LAW.** (3)
An examination of the politics of the development of international law and its operation in a multicultural world. Legal principles and international political processes are discussed through illustrative issue areas: management of conflict; distribution of territorial resources; environmental problems; and human rights.

**PS 439G CONTEMPORARY INTERNATIONAL PROBLEMS.** (3)
An examination of selected current problems in world politics and foreign policy. Students will be encouraged to apply their knowledge to the analysis of contemporary international issues.

**PS 441G EARLY POLITICAL THEORY.** (3)
A survey of political theorists in the Western political tradition from classical Greece to the Renaissance. The formative influences upon our conceptions of politics, citizenship, justice, and natural rights will be highlighted and key issues in controversies over rhetoric and philosophy, time and political order, education and the body politic, and political action and human artifice will be illuminated.

**PS 442G MODERN POLITICAL THEORY.** (3)
Western political theory from Machiavelli to Marx and Weber with emphasis on the impact of early modern culture and liberalism upon contemporary views of power, individualism, community, and political consciousness. Key contributions of modern political theorists to perennial debates on power and the intellectual, institutional bases of modern constitutionalism, human nature and aggression, the sources of alienation, and the relation of modern science and technology to contemporary forms of domination will be explored.

**PS 453G URBAN GOVERNMENT AND POLITICS.** (3)
An analysis of the formulation of public policy in small towns, middle-sized cities, and metropolitan areas. A theoretical model appropriate to all three settings will be formulated. The principal methods of studying community decision-making will be evaluated. Prereq: Three hours of social sciences.

**PS 454G POLITICS OF LAND USE AND GROWTH MANAGEMENT.** (3)
A study of the legal and structural features of the land use regulatory system, the social and political environments within which this system operates, and the values, stakes, and perspectives of those who operate or seek to influence this system. Topics will include land use planning, zoning and other regulatory tools, as well as growth management techniques and problems. Prereq: PS 453G.

**PS 456G APPALACHIAN POLITICS.** (3)
A study of the interrelationships of the Southern Appalachian region and its people with the larger American political system, culture, and economy. Selective examination of public policies and major issues and their development in the politics of the region.

**PS 461G CIVIL LIBERTIES.** (3)
A study of the philosophy and development of civil liberties in the U.S. Major concentration on the interpretation of constitutional guarantees by the Supreme Court.

**PS 463G THE AMERICAN JUDICIAL PROCESS.** (3)
A study from the standpoint of the social sciences, of the judicial process at the state and national levels, dealing with the organization of courts, the making of judicial decisions, and the exercising of judicial power.

**PS 465G CONSTITUTIONAL LAW.** (3)
A non-chronological study of major Supreme Court decisions and recent issues relating to separation of powers, federalism, the commerce clause, taxes, criminal justice and other non-civil liberties areas. Prereq: PS 101 or consent of instructor.

**PS 467G THE U.S. SUPREME COURT.** (3)
A study of the Court as a political-legal institution, focusing on the appointment of justices, the development of its docket, the decisional process, and its interaction with other political institutions. Prereq: PS 101 or consent of instructor.

**PS 470G AMERICAN POLITICAL PARTIES.** (3)
An analysis of American national and state party systems, organization, and functions; nominations and elections; and voting patterns.

**PS 472G POLITICAL CAMPAIGNS AND ELECTIONS.** (3)
An analysis of individual voting behavior and candidate strategies during presidential and congressional elections. The effect of the mass media, political action committees, and political advertising on the vote decision is examined. Attention is also devoted to candidates' campaign organizations and communication strategies.

**PS 473G PUBLIC OPINION.** (3)
An introduction to the nature and content of public opinion, how polls are conducted, the political effects of polling, and the role of public opinion in the policymaking process.

**PS 474G POLITICAL PSYCHOLOGY.** (3)
An exploration of different models of political behavior, based on concepts of psychoanalysis, behaviorism, humanism, and social psychology. Prereq: PS 101 and PSY 100 or equivalent, or consent of instructor.

**PS 475G POLITICS AND THE MASS MEDIA.** (3)
The ways the modern mass media affect the dynamics of politics in the United States are examined in this course. Specific topics include the impact of television on political discourse; the structure and ownership of mass media; how news is made and how it influences our political attitudes and behaviors; the role of the media in campaigns, elections and policy making. Prereq: PS 101.

**PS 476G LEGISLATIVE PROCESS.** (3)
A study of Congress and the state legislatures, covering the legislative power structure, legislative committees, the selection of legislators and the roles they play, decision making, and the relations of the legislative and executive branches.

**PS 479 WOMEN AND POLITICS.** (3)
A study of the role of women as political actors in the United States including the status of women in American society and the contribution of government policy to maintaining or changing that status. The political behavior of women at the mass and elite level will be examined.

**PS 480G GOVERNMENT AND THE ECONOMY.** (3)
This course analyzes the relationship between political and economic systems in the modern, democratic, capitalist state. While the focus is primarily upon the United States, other political/economic systems as well as more general theoretical statements will be considered. Prereq: PS 101 and ECO 101 or equivalent.

**PS 482G FOOD, ENERGY, AND ECOLOGY.** (3)
An examination of agricultural policy, the food-energy connection, and ecological farming practices in national and international perspective. Special attention is given to the farmer in cultural myth and political folklore and to farm movements as political phenomena taking populist and reactionary forms. Prereq: PS 101 or GEN 101, or consent of instructor.

**PS 487G INTRODUCTION TO PUBLIC ADMINISTRATION.** (3)
A study of theories of administration and organization, problems of management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibilities under democratic government, and the political, social, and institutional context of administration.

**PS 489G THE ANALYSIS OF PUBLIC POLICY.** (3)
A study of the development, implementation and impacts of government policies; and the sources of variation in policies adopted by differing governmental units.

**PS 490 HONORS IN POLITICAL SCIENCE.** (3)
This course will provide, in a seminar setting, the opportunity for students to concentrate on developing and implementing research projects on topics of their own choice. The course will allow discussion of various perspectives in political science as well as on problems encountered in the research process. Prereq: Senior standing with 3.25 overall GPA and 3.50 GPA in major.

**PS 491 SPECIAL TOPICS IN POLITICAL SCIENCE (Subtitle required).** (1-3)
Course will focus on selected topics drawn from various areas of political science taught by faculty members with special interests and competence. May be repeated in courses of differing topics to a maximum of 12 credits.

**PS 538 CONFLICT AND COOPERATION IN LATIN AMERICAN RELATIONS.** (3)
An examination of (1) national development strategies as determinants of Latin American foreign policies, (2) the origins and political consequences of economic nationalism, (3) historical patterns of U.S. response to reformist and/or revolutionary change, (4) the role of extra-continental contenders for influence in the Americas, and (5) at least one contemporary foreign policy issue in inter-American relations. Prereq: PS 428G or permission of instructor.

**PS 539 THE FOREIGN POLICY OF THE SOVIET UNION.** (3)
A broad survey of Soviet foreign affairs from the Bolshevik Revolution to the present and an introduction to the key theories, guiding concepts, and competing techniques for analyzing Soviet foreign policy-making. A critical and comparative approach, informed by relevant case studies, will be used to clarify the strategic, technological, organizational, and political dimensions of the Soviet policy-making process in the international realm. Prereq: PS 429G or consent of instructor.

**PS 545 AMERICAN POLITICAL THOUGHT.** (3)
This course explores the American tradition of political thought, its formation, and the ways it is involved in major problems of culture, political economy, ideology, and identity. Alternative ideas of work, power, political obligation, science and technology, and related issues are examined. Relationships of theory and practice, public and private, and government and society are analyzed.

**PS 557 KENTUCKY GOVERNMENT AND POLITICS.** (3)
A study of current political issues and institutions in Kentucky.

**PS 566 CONSTITUTIONAL INTERPRETATION.** (3)
A study of the political and the philosophical origins of the U.S. Constitution and of the competing and overlapping philosophies about how it should be interpreted in modern times. Prereq: One of the following: PS 461G, PS 465G, or HIS 573.

**PS 571 INTEREST GROUPS.** (3)
A study of interest groups, their roles in the political process, and techniques of lobbying and influencing opinion. Prereq: Junior standing.

**PS 580 THE BUDGETARY PROCESS.** (3)
A study of the development of budgetary techniques in the United States, the uses to which budgets are put, the roles of the budgetary process in budgetary politics and in the functioning of government, and the distribution of government resources through the budget.

**PS 584 THE AMERICAN PRESIDENCY AND THE FEDERAL EXECUTIVE.** (3)
A course in the American presidency, emphasizing institutional developments and the impact of recent presidents on the office, on other governmental institutions, on domestic and foreign policies, and including an examination of the broader context of the executive branch of government.

**PS 620 COMPARATIVE POLITICS: THEORY AND METHOD.** (3)
A study of the evolution and development of comparative government and politics within the discipline with particular emphasis upon the formulation, application, and limitations of the theories, taxonomies and conceptual frameworks employed in comparative research.

**PS 630 PROSEMINAR IN NON-INSTITUTIONAL POLITICAL BEHAVIOR.** (3)
Focuses on literature with implications for individual-level political behavior, particularly mass behavior. Major works in such fields as political socialization, biopolitics, political communication, and political games and coalitions. Specific content may vary in response to current demands. Readings in a substantive field such as voting behavior are also examined as examples of the application of listed areas. Prereq: Consent of instructor.

**PS 654 PROSEMINAR IN JUDICIAL PROCESS.** (3)
A thorough survey of the recent literature in the judicial process, focusing particularly on judicial recruitment, the relationship of the judiciary to other power centers, and the decision-making process of judges.

**PS 671 STRATEGIES OF INQUIRY IN POLITICAL SCIENCE.** (3)
Analysis of research paradigms for political science, and investigation into the foundations of scientific inquiry. Emphasis on topics such as explanation, concept formation, the construction and function of theory, data, and verification.

**PS 672 INTRODUCTION TO TECHNIQUES OF POLITICAL RESEARCH.** (3)
Basic techniques of data collection, coding, and processing applicable to political research are introduced. Various statistical techniques of data analysis are discussed and applied to political data. Prereq: PS 671, familiarity with appropriate statistical methods and consent of instructor.

**PS 674 PROSEMINAR IN THEORIES OF INTERNATIONAL POLITICS.** (3)
A survey of the major theoretical approaches to the study of international systems and processes.

**PS 680 PROSEMINAR IN POLITICAL INSTITUTIONS AND PROCESS.** (3)
A thorough survey of recent literature on political institutions and the political process, including political parties and the legislative and executive processes, at the national and sub-national levels.

**PS 685 PROSEMINAR IN PUBLIC ADMINISTRATION AND POLICY.** (3)
A survey of recent literature on public administration and public policy, including organizational theory, the political environment of administration, public budgeting, public personnel administration, public policy administration, and public management.

***PS 690 PROSEMINAR IN CONTEMPORARY POLITICAL THEORY.** (3)
An examination of contemporary political theories, especially their relationships to theoretical issues in policy analysis. Major problems such as inquiry and change, ideology and power, and knowledge and authority will be studied, particularly in the context of public policy.

**PS 711 TOPICAL SEMINAR IN POLITICAL SCIENCE (Subtitle required).** (3)
Topic and instructor will vary from semester to semester. Faculty member presents seminar on topic in which he has particular research competence or special expertise. May be repeated under different subtitle to a maximum of nine hours. Prereq: Two semesters of graduate work and consent of instructor.

**PS 730 AMERICAN FOREIGN POLICY.** (3)
The course emphasizes contending interpretations of the nature and sources of American foreign policy, the position of the United States in the international system, and foreign policy decision making. Prereq: Consent of instructor.

***PS 731 INTERNATIONAL SECURITY/ CONFLICT ANALYSIS.** (3)
The seminar examines international security affairs, with an emphasis on the sources and nature of conflict, and methods of conflict, the patterns of conflict, and methods of conflict resolution and regulation, both within states and among them. Prereq: Consent of instructor.

**PS 733 INTERNATIONAL POLITICAL ECONOMY.** (3)
The course examines the contending theoretical perspectives and substantive functional issues underlying the politics of international economic relations. Special attention is paid to international trade and money, the politics of North-South relations, and comparative foreign economic policies. Prereq: Consent of instructor.

**PS 737 TRANSNATIONAL ORGANIZATIONS AND PROCESSES.** (3)
An analysis of approaches to the study of international, transnational and regional political and economic organizations and processes within the context of world politics. An examination of the impact of these activities and processes on contemporary problems of world order. Prereq: Graduate student status.

**PS 738 SEMINAR IN THE POLITICS OF ECONOMIC DEVELOPMENT (Subtitle Required).** (3)
An analysis of the political environment and consequences of policy-making for developmental ends in Latin America, Africa, the Mid-East or Asia. Economic policy-making will be emphasized, but consideration may also be directed to housing, health, and educational policy-making. Course will generally focus on a geographic area. May be repeated to a maximum of nine credits under different subtitles. Prereq: Introductory economics or consent of the instructor.

**PS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PS 750 POLITICAL PARTIES AND ELECTIONS IN AMERICA.** (3)
A study of the organization and functions of political parties, nominations and elections, and voting alignments. Prereq: An undergraduate political parties course or consent of instructor.

**PS 757 SEMINAR IN COMPARATIVE DEMOCRATIC POLITICAL SYSTEMS.** (3)
An analysis of democratic political systems with emphasis upon the comparative approach as a method of political analysis. Prereq: PS 411G or consent of instructor.

**PS 758 SEMINAR IN SOVIET POLITICS, GOVERNMENT AND FOREIGN POLICY.** (3)
Emphasis on methodology of various approaches to the study of the USSR, as well as substantive research. Subjects will alternate yearly between Soviet politics and Soviet foreign policy. Prereq: PS 429G and PS 539 or consent of instructor.

**PS 762 SEMINAR IN JUDICIAL POLICY MAKING.** (3)
Formulation, development and implementation of Constitutional policy by the United States Supreme Court and other agencies. Primary focus on areas of contemporary importance (excluding civil rights). Cases and supporting materials. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PS 763 SEMINAR IN ADMINISTRATIVE POLITICS.** (3)
The process by which administrative agencies establish and enforce policy are analyzed in terms of both legal and political considerations and behavioral theory. Prereq: Consent of instructor.

**PS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

***PS 770 DEMOCRATIC THEORY AND PUBLIC POLICY.** (3)
This seminar typically focuses on the relationship of democratic theories to specific issues of public policy, including the role of values in policy analysis. Questions of science, ethics, and democracy and the relationship between technical knowledge and political knowledge may receive attention. Prereq: PS 690 or consent of instructor.

**PS 772 ADVANCED PROBLEMS IN RESEARCH METHODS.** (3)
A seminar in selected topics; the application of mathematical models and advanced statistical techniques to political science data. May be repeated to a maximum of six credits.

***PS 778 RESEARCH PROBLEMS IN TRANSNATIONAL POLITICS.** (3)
This seminar focuses on research strategies that can be utilized in dealing with problems in transnational politics. May be repeated to a maximum of six hours with consent of the instructor. Prereq: PS 620 or PS 674.

**PS 780 LEGISLATIVE BEHAVIOR.** (3)
A study of recent research in the legislative process emphasizing both the substantive and methodological aspects. Prereq: An upper division course in the legislative process or consent of instructor.

**PS 785 PSYCHOLOGICAL BASES OF POLITICAL BEHAVIOR.** (3)
The role of psychological constructs and theory in political explanation; measurement and inference problems; critical analysis of research concerned with such topics as the effect of psychological mechanisms on loyalty, quiescence, participation, political change and revolution. Prereq: PS 671 and PS 672 or consent of instructor.

**PS 795 SPECIAL PROBLEMS IN POLITICAL SCIENCE.** (1-3)
Specific programs of readings are developed to meet the needs of individual students. May be repeated to a maximum of six credits for master's students and 12 credits for Ph.D. students. Prereq: Any 600 level course in political science or consent of the Director of Graduate Study.

**PS 796 DIRECTED RESEARCH IN POLITICAL SCIENCE.** (1-3)
Individual research in a particular field of political science under the supervision of selected faculty. Open to advanced graduate students who are prepared for intensive study and research beyond that offered in regular classes in each field. May be repeated to a maximum of six hours. Prereq: Consent of the instructor and the director of graduate studies.

## PSY Psychology

**PSY 100 INTRODUCTION TO PSYCHOLOGY.** (4)
An introduction to the study of behavior covering theories, methods and findings of research in major areas of psychology. Topics covered will include the biological foundations of behavior; learning, perception, motivation, personality; developmental, abnormal, and social behavior; and methods of assessment. This course is a prerequisite to a significant number of courses in this and related areas of study. Lecture, three hours; laboratory/discussion, two hours.

**PSY 111 INTRODUCTORY PSYCHOLOGY— TELEVISION COURSE.** (3)
An introduction to the study of behavior covering theories, methods, and findings of research in major areas of psychology. Topics covered will include the biological foundations of behavior, learning, perception, motivation, personality, developmental, abnormal, and social behavior; and methods of assessment. This course cannot be substituted for PSY 100 (4 credits) in the University Studies Program. Not for majors in psychology.

**PSY 195 ORIENTATION TO PSYCHOLOGY.** (1)
An orientation to educational issues and career planning and development for students considering the major in psychology. Topics include career paths and opportunities, professional resources and issues, and educational planning. Pass/Fail only.

**PSY 215 EXPERIMENTAL PSYCHOLOGY.** (4)
A study of the application of scientific methods to psychological research. Special emphasis is placed on the critical evaluation of contemporary research in experimental psychology. Particular attention is focused on the design, execution, and written report of laboratory research. Lecture, three hours; laboratory, two hours. Prereq: PSY 100 and sophomore standing, or consent of instructor.

**PSY 216 APPLICATIONS OF STATISTICS IN PSYCHOLOGY.** (4)
An introduction to statistical procedures used in making decisions based on psychological data. May not be used to satisfy the laboratory requirement in the College of Arts and Sciences. Lecture, three hours; laboratory, two hours. Prereq: PSY 100.

**PSY 223 DEVELOPMENTAL PSYCHOLOGY.** (3)
An introduction to the principles of developmental psychology as seen in human growth over the entire lifespan, with the primary focus on infancy through adolescence. Emphasis is placed on theory and data relating to the developmental aspects of cognition, language and personality. Prereq: PSY 100 or equivalent. (Same as FAM 254.)

**†PSY 301 INTRODUCTION TO HUMANISTIC PSYCHOLOGY.**

**PSY 305 PSYCHOLOGY OF SEX ROLES.** (3)
A survey of the psychology of sex roles designed for the upper division undergraduate. The course will explore sex roles as they have been examined in the research literature of the social personality, developmental, physiological, and clinical areas of psychology. Both theoretical concepts and research findings will be considered. Prereq: PSY 100 and sophomore standing.

**PSY 331 THE PSYCHOLOGY OF ADJUSTMENT.** (3)
The individual's psychological adjustment to society is analyzed from a mental health perspective. The course provides a general orientation to the normal-abnormal continuum of behavior, including individual, social, and cultural determinants of behavior. Prereq: PSY 100. Not open to students who have had CH 520.

**PSY 395 INDEPENDENT WORK IN PSYCHOLOGY.** (1-3)
Designed for advanced students who undertake minor research problems to be conducted in regular consultation with the instructor. Those students who take the course for three credits will meet as a group with a faculty member on a weekly basis; written and reading assignments will be given and the students will discuss the projects on which they are involved. May be repeated to a maximum of 12 credits. Prereq: Major in the department with a standing of 3.0 in psychology courses. A signed contract between student and faculty member must be filed in the departmental office prior to enrollment in the course.

**PSY 399 FIELD BASED/COMMUNITY BASED EDUCATION.** (1-6)
A community-based or field-based experience in psychology, under the supervision of a faculty member. May be repeated to a maximum of 12 credits (if applicable). Pass-fail only. Prereq: Consent of instructor and department chairperson; filing of a learning contract with departmental office and Office for Experiential Education; completion of 12 hours in psychology with a GPA of 2.5 in psychology courses. Psychology majors, juniors and seniors only.

**PSY 400 HISTORY AND SYSTEMS OF PSYCHOLOGY.** (3)
The course is designed primarily for majors in psychology in the senior year. A review of the history of psychology with special emphasis on the development of major psychological theories. The philosophical origins of psychology as a science are analyzed along with their impact on important psychologists. The influence of psychology's history on its current concepts, methods and problems is studied. Prereq: PSY 100.

***PSY 423 PROCESSES OF PSYCHOLOGICAL DEVELOPMENT.** (3)
An advanced lecture course for majors in the life sciences (social, behavioral, and biological). The course will examine the nature of developmental processes in the areas of intelligence, learning, personality, and social behavior. Students will be required to do extensive reading in primary source materials. Prereq: PSY 223 or consent of instructor.

***PSY 444 SOCIAL PSYCHOLOGY.** (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. (Note: Not open for graduate credit to graduate students in Psychology and Sociology.) Prereq: One of the following: PSY 100, SOC 101, or GEN 102. (Same as SOC 444.)

***PSY 459 DRUGS AND BEHAVIOR. (3)**
General principles of drug action from a physiological perspective. Major emphasis is on the psychoactive drugs encountered in experimental, clinical and social settings. Prereq: PSY 215 and BIO 103, or BIO 150 or equivalent.

**PSY 495 SENIOR THESIS SEMINAR. (3)**
This course focus will be on the development and presentation of a research question, and the design of an experimental test of the question. The course will use a seminar format. Students will be expected to give both an oral and written presentation of their research proposal and to participate in the discussion of the proposals of other students. Prereq: Major in psychology, senior status, research sponsor, approval of instructor.

**PSY 496 SENIOR THESIS RESEARCH. (3)**
This course focus will be on the oral and written presentation of research results. The course will use a seminar format. Students will complete their thesis research, prepare a written report, and present it to the seminar. Prereq: PSY 495.

**PSY 502 INTRODUCTION TO INDUSTRIAL PSYCHOLOGY. (3)**
Review of the functions and findings of psychology applicable to business and industry. Topics covered are employment procedures, personnel testing, attitude analysis, motivation, and morale. Prereq: PSY 100.

**PSY 503 PSYCHOLOGY OF INDUSTRIAL PERSONNEL PROCEDURE. (3)**
A practical course for those preparing for personnel administration and for psychology in industry and business. A study is made of the theory and methods of position classification, job analysis, job evaluation, merit rating, supervisor selection and training, and collective bargaining. Prereq: PSY 100.

**PSY 521 COGNITIVE PROCESSES LABORATORY. (1)**
Laboratory for PSY 527 to provide experience with the research methods of cognitive psychology. Lab sessions involve participation in a series of experiments on attention, memory, language, and problem-solving. Laboratory: two hours. Prereq or concurrent: PSY 527.

**PSY 523 RESEARCH METHODS IN DEVELOPMENTAL PSYCHOLOGY. (4)**
An advanced course in research methods in human development. Emphasis will be placed on the understanding and use of research designs and techniques that examine behavior change from a developmental perspective. Students are expected to design and carry out a research project. Lecture, three hours; laboratory, two hours. Prereq: PSY 100, 215, and 216.

**PSY 525 HUMAN SENSES AND PERCEPTION. (3)**
A study of the stimulus, receptor and organism variables that underlie perceptual experience and perceptually based behavior with emphasis upon theory and experimental method. Prereq: PSY 100.

**PSY 526 HUMAN SENSE AND PERCEPTION LABORATORY. (1)**
Laboratory to accompany PSY 525. Laboratory consists of a series of exercises and experiments with students serving as experimenters and subjects. Emphasis is on perceptual content, but methods and report writing are also stressed. The course includes prescribed studies of visual fields, auditory discrimination, visual acuity, form perception, space perception and binocular rivalry in addition to a final independent project of the student's own choice. Laboratory, two hours. Prereq or concur: PSY 525; PSY 216 is recommended.

**PSY 527 COGNITIVE PROCESSES. (3)**
Theory and experimental techniques in the study of human thought processes. Emphasis on research in memory, information processing, language, and concept formation. Prereq: PSY 100.

**PSY 528 DIMENSIONS OF AGING. (3)**
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate level standing. (Same as SOC 528, ANT 528.)

**PSY 529 PSYCHOLINGUISTICS. (3)**
Study of the acquisition, production and perception of human language. The relationship between linguistic theories and experimental data will be critically examined. Prereq: Either PSY 215 or LIN 211.

**PSY 532 PERSONALITY. (3)**
An examination of several prominent personality theories in terms of the contexts in which they were originated, their influence upon contemporary psychological thought, and their present applications. Prereq: PSY 100 plus one of the following: PSY 215, 216 or 223.

**PSY 533 ABNORMAL PSYCHOLOGY. (3)**
A study of the major mental disorders, especially the psychoneuroses and the psychoses, and the biological, psychological, and sociological factors which contribute to their causation. Prereq: PSY 100 plus one of the following: PSY 215, 216 or 223.

**PSY 534 CHILD PSYCHOPATHOLOGY. (3)**
The course is designed to cover issues in the classification, assessment, and treatment of the major childhood behavior disorders, including attention deficit and conduct disorders, learning disabilities, depression, and child abuse. In addition, issues relating to parent-child relations, divorce, and children's attributions will be covered. Prereq: PSY 215; and either PSY 223 or 533 or FAM 255.

**PSY 535 PSYCHOLOGICAL TESTING. (3)**
A general orientation to the field of psychological testing. Introduction to the principles and methods of psychological testing, and a survey of the various kinds of psychological tests. Prereq: PSY 100 and 216.

**PSY 539 INTERPERSONAL DYNAMICS. (3)**
A systematic analysis of interpersonal behavior in a group setting. Particular emphasis on experiential methods of applying theoretical and research findings to interpersonal group development and process. Prereq: PSY 100.

**PSY 547 EXPERIMENTAL SOCIAL PSYCHOLOGY. (4)**
An advanced laboratory course in social psychology for students who have had some background in social and experimental psychology. Theory and research methods involving several major traditions within social psychology will be dealt with. Both laboratory and field approaches to research will be stressed. Lecture, two hours; laboratory, two hours. Prereq: PSY 215, PSY 216, PSY 444G, or equivalent.

**PSY 550 PSYCHOLOGY OF LEARNING. (3)**
Fundamental principles and findings from laboratory investigations of classical, instrumental, and verbal learning. Prereq: PSY 215.

**PSY 551 PSYCHOLOGY OF LEARNING LABORATORY. (1)**
Laboratory demonstrations of, and participation in, the use of scientific methodology as it applies to basic principles of learning appearing in human and subhuman subjects. Laboratory, two hours. Prereq or concur: PSY 550. PSY 216 is recommended.

**PSY 552 ANIMAL BEHAVIOR. (3)**
Experimental techniques used in the study of animal behavior. Particular emphasis is placed on the assessment of intellectual capacities in animals. Topics include: memory, concept learning, imitation, tool use, language, cooperation, and altruism. Prereq: PSY 215 or consent of instructor.

**PSY 553 ANIMAL BEHAVIOR LABORATORY. (1)**
Application of techniques used in the study of animal behavior. The class will design and carry out experiments in animal behavior. Students will organize and discuss results and will explore theoretical and applied implications of the research. Laboratory, two hours. Prereq or concur: PSY 552. Prereq: PSY 216.

***PSY 556 BEHAVIORAL NEUROSCIENCE. (3)**
An intensive study of neural bases of behavior. Principal concerns are the neural and chemical substrates of processes such as sensation and perception, learning and memory, motivation and emotion, and behavior disorders. Prereq: PSY 215 and BIO 103, or 150 or equivalent, or consent of instructor.

***PSY 557 BEHAVIORAL NEUROSCIENCE LABORATORY. (1)**
Laboratory for PSY 556 provides firsthand experience with the research methodology of behavioral neuroscience. Prereq or concur: PSY 556.

**PSY 558 BIOLOGY OF MOTIVATION. (3)**
An examination of the causes of human and nonhuman behavior from a biological perspective. Special attention is paid to the interaction between genetic inheritance, individual experience, and physiological state in the control of the appetitive and consummatory behaviors. Prereq: PSY 215 and BIO 103, or BIO 150 or equivalent.

**PSY 561 ADVANCED TOPICS IN FOUNDATIONS OF CLINICAL PSYCHOLOGY (Subtitle required). (3)**
Selected topics in clinical psychology such as health psychology and introduction to clinical psychology. Course topics will vary from year to year, providing students with a diversity of material in the area of clinical psychology. May be repeated to a maximum of six credits. Prereq: PSY 533 or PSY 532.

**PSY 562 ADVANCED TOPICS IN COGNITIVE PSYCHOLOGY (Subtitle required). (3)**
This course is designed to provide in-depth study of a specialized topic within cognitive psychology. Topics will vary from year to year and may include: theories of memory; theories of reading; cognition and emotion; connectionist modeling; engineering and environmental psychology. May be repeated to a maximum of six credits. Prereq: PSY 527 or equivalent.

**PSY 563 ADVANCED TOPICS IN DEVELOPMENTAL PSYCHOLOGY (Subtitle required). (3)**
This course is designed to provide in-depth study of a specialized topic in developmental psychology. Topics will vary from year to year and may include: cognitive development; development of memory and attention; development of reasoning and problem solving; and media use and children's development. May be repeated to a maximum of six credits. Prereq: PSY 223 or equivalent.

**PSY 564 ADVANCED TOPICS IN LEARNING (Subtitle required). (3)**
The course will provide in-depth study of specialized topics in the area of higher learning in animals. Topics will vary from year to year and may include concept learning, memory, imitation, language, and cooperation. The course will also examine these processes from the perspective of sociobiology. May be repeated to a maximum of six credits. Prereq: PSY 550, PSY 552 or consent of instructor.

**PSY 565 ADVANCED TOPICS IN NEUROSCIENCE (Subtitle required). (3)**
Advanced coverage of recent research within the field of behavioral neuroscience. The course will provide in-depth coverage of one topic, such as developmental psychobiology, neurobiology of learning and memory, or the biological basis of reward. May be repeated to a maximum of six credits. Prereq: PSY 556 or consent of instructor.

**PSY 566 ADVANCED TOPICS IN SOCIAL PSYCHOLOGY (Subtitle required). (3)**
Selected topics exploring aspects of social psychology. The content of the course will vary from year to year, focusing on topics such as social cognition, the self, cross-cultural psychology, personal relationships, consumer and organizational psychology, and nonverbal communication. Class format will be determined by the instructor, with some years having a small seminar structure and other years having a more traditional lecture format. May be repeated to a maximum of six credits. Prereq: PSY 444G, PSY 216, or consent of instructor.

**PSY 603 PSYCHOPATHOLOGY. (3)**
An examination of the descriptive, theoretical, and research material relevant to the major classes of disturbed behavior. Special attention is devoted to the stylistic features of neurotic and psychotic communication and behavior. Prereq: Enrollment in the graduate program in clinical psychology.

**PSY 610 PSYCHOMETRICS. (3)**
Analysis and interpretation of human measurements. The course deals with the application of basic inferential procedures to the analysis and interpretation of psychological data. Required of all graduate students in psychology. Prereq: A course in statistics.

**PSY 611 PSYCHOLOGICAL RESEARCH. (3)**
The course deals with the design of psychological experiments. Emphasis is upon issues concerning choice of appropriate designs for psychological research. Both experimental and correlational research designs are studied. Required of all graduate students in psychology. Prereq: PSY 610 or permission of instructor.

**PSY 616 RESEARCH DESIGN IN CLINICAL PSYCHOLOGY. (3)**
Concentrates on current methodologies utilized in clinical research and on the application of sophisticated techniques to traditional research problems. Students are expected to master critical skills for the evaluation of research designs and are encouraged to explore creative approaches to research in important clinical areas. Prereq: Enrollment in the graduate program in clinical psychology.

**PSY 620 PROSEMINAR IN HISTORY AND SYSTEMS OF PSYCHOLOGY. (3)**
A study of the philosophical precursors and scientific traditions of psychology. The schools of 19th and 20th century psychology are surveyed as are the major theoretical positions and content areas of contemporary psychology. Prereq: Graduate standing in Department of Psychology or Department of Educational and Counseling Psychology. (Same as EDP 615.)

**PSY 621 PROSEMINAR IN LEARNING. (3)**
An intensive treatment of concepts, methodology, and current developments in the field of learning. Prereq: PSY 550 or equivalent.

**PSY 622 PROSEMINAR IN PERSONALITY. (3)**
An intensive treatment of theories, methods of investigation and current developments in the area of personality. Prereq: PSY 532 or equivalent.

**PSY 623 PROSEMINAR IN SENSATION AND PERCEPTION. (3)**
An intensive examination of the facts, methods and concepts involved in the study of sensory and perceptual processes. Prereq: Consent of instructor.

**PSY 624 PROSEMINAR IN SOCIAL PSYCHOLOGY. (3)**
An intensive examination of the methods and data of social psychology with emphasis on social attitudes. Prereq: PSY 444G or equivalent.

**PSY 625 PROSEMINAR IN DEVELOPMENTAL PSYCHOLOGY. (3)**
An intensive treatment of theoretical and experimental literature, both classical and contemporary, in developmental psychology. Prereq: Admission to the graduate program in psychology or consent of instructor.

**PSY 626 SURVEY OF HEALTH PSYCHOLOGY. (3)**
A survey of the field of health psychology. It will explore the ways in which social and psychological research contribute to an understanding of health and illness behavior. Prereq: Graduate or professional standing and consent of instructor. (Same as BSC 626.)

**PSY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)**
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate standing or permission of instructor. (Same as PGY 627.)

**PSY 628 PROSEMINAR IN COGNITIVE PROCESSES. (3)**
An intensive examination of theoretical and empirical evidence concerning mental processes in the adult human, including attention, memory, language, and problem-solving. Prereq: Graduate standing in psychology, or consent of instructor.

**PSY 629 INTRODUCTION TO CLINICAL PSYCHOLOGY.** (2)
Offered conjointly by the clinical faculty; covers the broad perspectives of clinical psychology, methods, history, ethics, and professional issues. Prereq: Enrollment in the graduate program in psychology.

**PSY 630 CLINICAL METHODOLOGY I.** (2)
An intensive survey and evaluation of tests of intelligence and objective methods of assessment of normal and abnormal personality. Special emphasis is given to major theoretical issues and relevant quantitative methods. Prereq: PSY 216, 532, 533, 535, or equivalent, and enrollment in graduate program in psychology.

**PSY 631 PRACTICUM IN CLINICAL METHODOLOGY I.** (2)
Clinical interviewing and practice in writing reports on behavioral observations, content of verbalization, and case history data. Practice in administration, scoring and interpretation of intelligence tests and objective personality tests. Laboratory, four hours. Prereq: PSY 532, 533, and 535, or the equivalent, and enrollment in the graduate program in clinical psychology. Prereq or concur: PSY 630.

**PSY 632 CLINICAL METHODOLOGY II.** (2)
Theoretical issues, quantitative methods and research findings on the projective methods of assessment of normal and abnormal personality. Prereq: PSY 630, and enrollment in graduate program in psychology.

**PSY 633 PRACTICUM IN CLINICAL METHODOLOGY II.** (2)
Practice in the administration and scoring of projective techniques and batteries of clinical tests. Laboratory, four hours. Prereq: PSY 630 and 631, and enrollment in graduate program in clinical psychology. Prereq or concur: PSY 632.

**PSY 636 SYSTEMS OF PSYCHOTHERAPY.** (3)
An intensive examination of the major theoretical and research approaches to therapeutic behavior change. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

**PSY 637 PRACTICUM IN PSYCHOTHERAPY AND BEHAVIOR CHANGE.** (1-3)
Supervised experience in the techniques of psychotherapy with adults, children and groups, and in community mental health approaches. Laboratory, two to six hours. Each clinical student must have a cumulative minimum of three different supervisors. May be repeated to a maximum of six credits. Prereq: PSY 636 and enrollment in graduate program in clinical psychology.

**PSY 638 DEVELOPMENTAL NEUROBIOLOGY.** (3)
An explanation of the processes which contribute to the development of the nervous system. Neurophysiological, cell biological and molecular approaches to cell differentiation, neuronal pathfinding and synapse formation and stabilization will be explored and discussed. Examples will be drawn from both vertebrate and invertebrate preparations. Prereq: BIO 535 or consent of instructor. (Same as ANA/BIO/PGY 638.)

**PSY 664 CULTURAL ISSUES IN MENTAL ILLNESS.** (3)
An in-depth discussion of theory and method of the various approaches to cultural and social factors in the etiology, distribution, and treatment of mental illness. Data from non-Western and Western cultures are examined. Prereq: Enrollment in graduate program in anthropology, sociology, psychology, educational and counseling psychology, or consent of instructor. (Same as ANT/BSC 664.)

**PSY 710 TOPICAL SEMINAR IN CLINICAL PSYCHOLOGY.** (3)
A selected topics course designed to cover content areas which are not being met by the current faculty; may be taught by persons with special qualifications from the community or by existing faculty exploring new areas. The topics, which may be offered as the need arises, may include on a semester basis mental retardation, intensive psychoanalytic theory, psychopharmacology, etc. May be repeated to a maximum of six credits. Prereq: As specified by instructor.

**PSY 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PSY 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

***PSY 767 TOPICAL SEMINAR IN BEHAVIORAL NEUROSCIENCE.** (3)
A study of selected topics in behavioral neuroscience with emphasis on recent research and theory. May be repeated to a maximum of nine credits. Prereq: Consent of instructor. This course may be elected to fulfill requirements in the psychology and physiology graduate programs. (Same as PGY 767.)

**PSY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PSY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PSY 772 TOPICAL SEMINAR IN LEARNING.** (3)
The study of selected topics in the learning area with emphasis on the recent experimental and theoretical literature. May be repeated to a maximum of six credits. Prereq: PSY 550 and consent of instructor.

***PSY 776 SEMINAR IN DEPENDENCY BEHAVIOR.** (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as ANT/SOC/BSC 776.)

**PSY 778 TOPICAL SEMINAR IN DEVELOPMENTAL PSYCHOLOGY.** (3)
An advanced seminar in selected topics in human development, including cognition, learning, language, personality, socialization, life span issues, and developmental aspects of psychopathology. Prereq: PSY 625 and enrollment in graduate psychology program, or consent of instructor. May be repeated a maximum of six credits.

**PSY 779 TOPICAL SEMINAR IN SOCIAL PSYCHOLOGY.** (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structures and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: PSY 444G. (Same as SOC 779.)

**PSY 780 PROBLEMS IN PSYCHOLOGY.** (1-3)
This number is used for topical seminars taught on an experimental basis or covering special material that may not be presented again. May be repeated to a maximum of six credits.

**PSY 781 RESEARCH PARTICIPATION.** (1)
Emphasis on the team approach to research. Designed primarily for first year graduate students. May be repeated to a maximum of four credits. Laboratory, two to four hours. Prereq: Enrollment in the graduate program in psychology.

**PSY 790 RESEARCH IN PSYCHOLOGY.** (1-12)
A minimum of three hours per credit a week is required on research conducted in consultation with the instructor. May be repeated as necessary with the approval of the Director of Graduate Studies.

## PT Physical Therapy

***PT 603 PHARMACOLOGY FOR PHYSICAL THERAPY STUDENTS.** (1)
Fundamental concepts of pharmacology and their impact on the physical therapy management of patients. This course focuses on the integration of basic science, research, and clinical intervention. Prereq: Admission to the Physical Therapy Professional program and successful completion of the spring and summer semesters in the first year.

**#PT 625 ADVANCED ASSESSMENT AND MANAGEMENT OF THE PATIENT WITH MUSCULOSKELETAL DISORDERS.** (3)
Assessment and management approaches will be presented. A treatment framework will be developed from assessment approaches. The student will utilize a problem solving approach to select and implement specific therapeutic interventions. Lecture, three hours; laboratory, two hours per week. Prereq: Admission to Physical Therapy and successful completion of the first year or consent of instructor.

***PT 628 GERONTOLOGY FOR PHYSICAL THERAPY STUDENTS.** (1)
This course is designed to provide the learner the fundamental concepts of aging which have a profound impact on the care of the geriatric patient. Concepts examined include the physiologic, medical, psychological, and behavioral changes which effect the physical therapy treatment of these patients. Students will conduct a clinical research project involving a geriatric clinic in the Lexington area. Prereq: Admission to the Physical Therapy Professional program and successful completion of the first year.

***PT 645 RESEARCH AND MEASUREMENT IN PHYSICAL THERAPY.** (3)
An analysis of various procedures and measuring instruments used in clinical practice and research in physical therapy. Emphasis is placed on the theory, application, and interpretation of the measurements in the evaluation of published materials. Basic statistical techniques and their appropriate use will be presented. Prereq: Admission to the Physical Therapy professional program and to the Graduate School.

***PT 676 ELECTROPHYSIOLOGICAL TESTING AND THERAPEUTICS.** (2)
The student is introduced to the principles of electricity, how it affects the muscle and nerve, its use in physical therapy for patient assessment and management, and its safety aspects. Lectures and laboratory exercises are included. Prereq: Admission to the Physical Therapy Professional program and successful completion of the first year.

**#PT 686 SPECIALTY ELECTIVES.** (2-4)
Introduction to emerging specialty areas within the physical therapy profession. Students will select multiple specialty areas under faculty direction. Prereq: Admission to the Physical Therapy Professional program and successful completion of the first year or consent of instructor.

**PT 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**†PT 801 GROSS ANATOMY FOR PHYSICAL THERAPY STUDENTS.**

**†PT 802 PHYSIOLOGY FOR PHYSICAL THERAPY STUDENTS.**

**†PT 803 EDUCATION AND COMMUNICATION.**

***PT 805 NORMAL FUNCTIONAL ANATOMY.** (3)
A regional study of the normal functional aspects of the neuromusculoskeletal systems, including the basic principles of biomechanics and human locomotion. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring semester (first year of the professional program).

**†PT 806 PROFESSIONAL SOCIALIZATION.**

**†PT 807 CLINICAL FUNCTIONAL ANATOMY.**

**†PT 809 NEUROANATOMY AND NEUROPHYSIOLOGY.**

**†PT 811 PATHOPHYSIOLOGY OF ACUTE CARE DISORDERS.**

**†PT 812 PATHOPHYSIOLOGY OF MUSCULOSKELETAL DISORDERS.**

**†PT 813 PATHOPHYSIOLOGY OF NEUROMUSCULAR DISORDERS.**

**†PT 814 PATHOPHYSIOLOGY OF NEUROLOGICAL DISORDERS.**

***PT 815 BASIC CLINIC SKILLS.** (4)
Theory, techniques, rationale, physiological effects, and indications of basic physical therapeutic procedures of hydrotherapy and massage, muscle testing and goniometry evaluations, gait analysis and muscle function are presented in lecture. Techniques are demonstrated and practiced in laboratory. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy Professional program and successful completion of the spring semester (first year of the professional program).

**†PT 816 SUMMER CLERKSHIP.**

**†PT 820 BASIC CLINICAL SKILLS OF ASSESSMENT AND MANAGEMENT.**

***PT 821 ASSESSMENT AND MANAGEMENT OF PATIENTS WITH ACUTE CARE DISORDERS.** (2)
The theoretic and clinical framework for physical therapy assessment and management of patients with acute care disorders, emphasizing those of the integumentary system, (i.e., wounds, burns, etc.) are discussed. These injuries will include open wounds as well as burns and their implications to the integumentary system. The student will utilize a problem solving approach to select and implement tests and measurements as well as therapeutic interventions. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

**†PT 822 ASSESSMENT AND MANAGEMENT OF NEUROMUSCULOSKELETAL DISORDERS I.**

**†PT 823 ASSESSMENT AND MANAGEMENT OF NEUROMUSCULOSKELETAL DISORDERS II.**

**†PT 824 ASSESSMENT AND MANAGEMENT OF NEUROLOGICAL DISORDERS.**

**†PT 825 ASSESSMENT AND MANAGEMENT OF PATIENTS WITH MUSCULOSKELETAL DISORDERS II.**

***PT 826 ORTHOTICS/PROSTHETICS.** (4)
This course will prepare the student to perform the physical therapy evaluation and provide patient management as part of a prosthetic or orthotic team. Lecture, two hours; laboratory, four hours per week. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

***PT 827 SPINAL CORD REHABILITATION TECHNIQUES.** (2)
Prepare the student as a participating member of the rehabilitation team with an emphasis on the role of the physical therapist. Patient evaluation, physical restoration, and vocational training for a variety of long-term illnesses are presented, discussed, demonstrated, and clinical techniques practiced. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

***PT 831 CLINICAL NEUROPHYSIOLOGY.** (2)
The study of the regional organization of the brain and spinal cord, the ways in which they connect and how these connectivities influence human behavior with emphasis on motor behavior. The effect of disease states on normal brain and spinal cord function will be discussed. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring and summer semesters in the first year.

**†PT 833 SCIENTIFIC INQUIRY.**

# - New course * - Course change † - Course dropped

***PT 834 INTRODUCTION TO PHYSICAL THERAPY AND BIOETHICS.** (3)
An orientation to the profession of physical therapy including history, professional organization, role in health care, elementary patient care skills, use of the medical library and professional documentation. Bioethics will be introduced in relationship to moral issues in health care. Prereq: Admission to the Physical Therapy professional program.

***PT 835 CLINICAL CLERKSHIP I.** (1)
The student observes patient treatment by experienced staff members and is supervised in the performance of elementary procedures involved in patient care. Offered on a pass-fail basis only. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring semester (first year of the professional program).

***PT 836 HUMAN GROWTH AND DEVELOPMENT.** (2)
In this course the on-going development of humans from birth to death is discussed. Aging is an irreversible, cumulative, predictable, universal process. The continuum of birth to death with the characteristics of onset, integration, disintegration as they relate to function are emphasized. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring and summer semesters (first year of professional program).

***PT 837 CLINICAL CLERKSHIP II.** (3)
Under competent supervision, students participate clinically in the care of patients in a variety of extramural facilities: general, children's and Veteran's Administration hospitals, and special out-patient facilities. Offered on a pass/fail basis. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

***PT 838 CLINICAL CLERKSHIP III.** (3)
Continuation of PT 837 includes a unit of study planning and coordination of hospital and community services in comprehensive care of patients by way of seminars and case presentations. Offered on a pass/fail basis only. Clinic, 170 hours. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

***PT 839 CLINICAL INTERNSHIP IN PHYSICAL THERAPY.** (9-16)
Supervised internship through which the student acquires understanding and skill in physical therapy procedures. Offered on a pass-fail basis. Sixty clock hours equal one credit hour. Prereq: Admission to the Physical Therapy professional program and successful completion of the second year.

**†PT 840 CLINICAL CLERKSHIP I.**

**†PT 841 CLINICAL CLERKSHIP II.**

**†PT 842 CLINICAL CLERKSHIP III.**

**†PT 843 CLINICAL INTERNSHIPS.**

***PT 846 MEDICAL AND PHYSICAL THERAPY MANAGEMENT OF ORTHOPEDIC PROBLEMS.** (3)
An introduction to medical procedures, including history, physical exam, laboratory data, radiographic film and medical and physical therapy management of orthopedic problems, including fractures, soft tissue injuries, scoliosis, joint replacements, muscle transplants and tendon repairs, will be presented. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

***PT 847 MEDICAL AND PHYSICAL THERAPY MANAGEMENT OF NEUROLOGICAL PROBLEMS.** (3)
Medical and physical therapy management of neurological problems, including the neurological examination, seizures, degenerative and neurological diseases, will be presented. Lecture/laboratory, patient contact, and case study formats will be used. Lecture, two hours; laboratory, two hours. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

**†PT 852 PSYCHOLOGY OF DISABILITY.**

**†PT 853 CLINICAL KINESIOLOGY.**

***PT 854 BIOLOGY OF DISEASE.** (3)
A study of the concept and process of disease. May be repeated for a total of five credits. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring and summer semesters (first year of professional program). (Same as HSE 854.)

***PT 856 THERAPEUTIC EXERCISE I.** (2)
This introductory course provides an overview of therapeutic exercise and its relation to patient management, and development of skill in basic therapeutic exercise approaches for improving muscle performance, relaxation and mobilization. Lecture and laboratory sessions are included. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring semester in the first year.

**†PT 857 THERAPEUTIC EXERCISE II.**

***PT 858 ADVANCED ASSESSMENT AND MANAGEMENT OF THE PEDIATRIC PATIENT.** (3)
Includes the normal and abnormal development of movement and its relation to treatment of children with central nervous system deficits. Medical and physical therapy management of patients with mental retardation and oral control problems are also presented in lecture and laboratory. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

**†PT 864 RESEARCH METHODOLOGY.**

**†PT 865 PROFESSIONAL SEMINARS I.**

***PT 866 ELECTROMODALITIES.** (1)
Theory and techniques of electromodalities are presented. Techniques are demonstrated and practiced in laboratory. Lab, two hours. Prereq: Admission to the Physical Therapy professional program and successful completion of the spring semester (first year of professional program).

**†PT 867 PROFESSIONAL SEMINARS II.**

**†PT 868 RESEARCH PROBLEMS.**

**†PT 877 CARDIO-RESPIRATORY THERAPY.**

***PT 887 INTRODUCTION TO PHYSICAL THERAPY MANAGEMENT.** (1)
An introduction to basic management techniques including purpose, goals and objectives; contracts, task statement and analysis; position descriptions; medicaid; quality assurance; placement services. This course runs during the entire 12-week summer term. Prereq: Admission to the Physical Therapy professional program and successful completion of the first year.

**PT 888 ADVANCED PHYSICAL THERAPY MANAGEMENT.** (3)
Emphasis is placed on operational aspects of physical therapy department including relationship to total facility operation, designing and equipping a department, contracts, salaries, fees, personnel policies, records, data processing, budget process, medical-legal implication, continuing education, and the consultative process. Prereq: PT 887 or consent of instructor.

**PT 898 INDEPENDENT STUDY.** (1-4)
The student will pursue in-depth a particular aspect of physical therapy or related fields. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

## RAE Russian and Eastern Studies

### RUSSIAN

**RAE 101 ELEMENTARY RUSSIAN.** (4)
The students are introduced to the language through grammatical explanations, recitation practice, and oral as well as written exercises. The emphasis is on the spoken language of everyday use, reading of graded Russian texts, vocabulary building and accurate pronunciation. Extensive work with tape recordings. Lecture, three hours; supervised recitation, one hour per week.

**RAE 102 ELEMENTARY RUSSIAN.** (4)
A continuation of RAE 101. Lecture, three hours; supervised recitation, one hour per week. Prereq: RAE 101 or equivalent.

**RAE 111 RUSSIAN ORAL PRACTICE.** (1)
Supplementary oral work for students of Elementary Russian; can be taken in conjunction with RAE 101 and/or RAE 102. May be repeated to a maximum of two credits.

**#RAE 115 BEGINNING KAZAKH I.** (4)
Beginning Kazakh is designed in 14 weeks to introduce to the students the essentials of the language and start building their proficiency in the four main areas auding, speaking, reading and writing. The main focus of the course is communication in Kazakh in various fields of everyday life. The major goal of the course is to help the students speak grammatically correct Kazakh while producing as much language as possible.

**#RAE 116 BEGINNING KAZAKH II.** (4)
This course is designed in 14 weeks to continue developing the students' skills in auding, speaking, reading and writing in Kazakh. Expansion of knowledge of Kazakh grammar and vocabulary. Prereq: RAE 115 or equivalent.

**RAE 201 INTERMEDIATE RUSSIAN.** (4)
Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive oral practice. Lecture, three hours; recitation, one hour per week. Prereq: RAE 102 or the equivalent. (Required.)

**RAE 202 INTERMEDIATE RUSSIAN.** (4)
A continuation of RAE 201. Lecture, three hours; recitation, one hour per week. Prereq: RAE 201 or equivalent. (Required.)

**RAE 205 RUSSIAN PHONOLOGY AND PRONUNCIATION.** (1)
A practical review of the Russian sound system with emphasis on practicing intonation in conversational situations. Lecture, one hour; laboratory, one hour per week. May be repeated to a maximum of two credits. Prereq: RAE 102.

**RAE 261 SURVEY OF RUSSIAN LITERATURE.** (3)
A study of Russian literature from its beginning to the present using selected major works of prose, poetry and drama. No knowledge of Russian is required.

**RAE 270 INTRODUCTION TO RUSSIAN CULTURE.** (3)
This course provides a general introduction to Russian culture from its origins through the early twentieth century. Readings, lectures, discussions, and audio-visual presentations acquaint students with the roots of Russian religion, art, architecture, music, and everyday life. Special attention is given the role of folk culture.

***RAE 280 RUSSIAN AND SOVIET CULTURE OF THE 20TH CENTURY.** (3)
A broad survey of Russian civilization as it has developed in the arts, law, and in its socio-religious values. Taught in English.

**RAE 301 THIRD YEAR RUSSIAN: INDIVIDUALIZED METHOD.** (3)
A course in the reading of Russian using the individualized, self-paced method of instruction for students who want to continue the study of Russian in the individualized program beyond the intermediate level. Prereq: RAE 202 and consent of instructor. Not open to students majoring in Russian. .

**RAE 302 THIRD YEAR RUSSIAN: INDIVIDUALIZED METHOD.** (3)
Continuation of RAE 301. Not open to students majoring in Russian. Prereq: RAE 301 and consent of instructor.

**RAE 303 RUSSIAN PRONUNCIATION AND CONVERSATION.** (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Prereq: RAE 101, 102, 201, 202.

**RAE 304 RUSSIAN PRONUNCIATION AND CONVERSATION.** (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Continuation of RAE 303. Prereq: RAE 101, 102, 201, 202.

**RAE 305 ADVANCED RUSSIAN GRAMMAR.** (3)
Detailed study of advanced points of Russian grammar, such as verbal aspect, verbs of motion, participles, conditional constructions, time expressions. Prereq: RAE 202 or equivalent.

**RAE 306 ADVANCED RUSSIAN GRAMMAR.** (3)
Continuation of RAE 305. Detailed study of advanced points of Russian grammar such as reflexives, passives, complex/compound sentences, word formation, word order, syntax. Prereq: RAE 305 or consent of instructor.

**RAE 310 RUSSIAN LISTENING AND ORAL PROFICIENCY.** (1)
Intensive practice with listening comprehension based on Soviet audio materials, conversation, and practice in word formation. Lecture, one hour; laboratory, one hour per week. Prereq: RAE 202.

**RAE 331 CLASSICAL ARABIC LITERATURE (In English).** (3)
Reading from some of the major works of Arabic literature (poetry and prose) of the 6th-14th centuries which are an integral part of the Arab cultural heritage, e.g., the *Mu'allaqat, Koran*, Ibn Ishaq's *Sirah*; al-Tabari's *Ta'rikh*; Abu'l Faraj's *Kitab al-Aghani*; al-Ghazzali's *Ihya*; al-Hariri's *Maqamat*; and Ibn Khaldun's *Muqaddimah*.

**#RAE 340 KAZAKH CULTURAL HISTORY I.** (3)
A chronological description of Kazakh cultural history from its origins through the nineteenth century.

**#RAE 342 KAZAKH CULTURAL HISTORY II.** (3)
A description of Kazakh cultural history immediately before, during, and after Soviet Power.

**RAE 380 SURVEY OF 19th CENTURY RUSSIAN LITERATURE (in English).** (3)
A survey of Russian literature of the 19th Century. Emphasis is on the development of romanticism, the rise of realism, and end-of-century decadence. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

**RAE 390 MODERN RUSSIAN LITERATURE (in English).** (3)
Russian literature of the 20th Century, including modernist trends, Socialist Realism, non-conformist trends, Russian literature abroad. Students taking the course for Russian major credit will be assigned outside work in Russian.

**RAE 395 INDEPENDENT WORK IN RUSSIAN.** (1-3)
Students who have the proper qualifications may undertake a special problem in reading and research. May be repeated to a maximum of six credits. (Recommended.)

**RAE 400G SEMINAR ON SPECIAL TOPICS IN RUSSIAN.** (3)
Detailed investigation of a given topic, author or theme. Research to be conducted at least in part using Russian materials. Subject will be announced prior to preregistration. May be repeated to a maximum of six credits.

**RAE 410 STRUCTURE AND STYLISTICS OF RUSSIAN.** (3)
A concise structural study of Russian grammar combined with readings illustrating the relationship between grammar and style in Russian prose and verse. Attention is also given to techniques and elements of formal textual analysis. Prereq: Third year knowledge of Russian.

**RAE 411 STRUCTURE AND STYLISTICS OF RUSSIAN.** (3)
A continuation of RAE 410. Prereq: RAE 410 or equivalent. (Recommended.)

**RAE 420 RUSSIAN TRANSLATION.** (3)
Translation of unadapted texts from Russian to English, theory of translation, practice translation of Russian texts of various kinds, both technical and literary, focus on specific stylistic requirements, translation of short texts from English to Russian, introduction to oral interpretation. Prereq: RAE 303-304 or equivalent.

**RAE 430G BUSINESS RUSSIAN.** (3)
Development of written and oral skills in Russian needed to conduct business activities in Russian-speaking areas of the former Soviet Union using various materials from banking, advertising, law, economics and industry. Prereq: Third year knowledge of Russian.

**RAE 460G TOLSTOY (in English).** (3)
The study of Tolstoy, his art and life. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

**RAE 462G ADVANCED READING IN THE SCIENCES AND TECHNOLOGY (in Russian).** (3)
Technical reading in a broad variety of Russian literature in the natural and social sciences to improve language skills enabling the student to read, write on and discuss technical subjects. Prereq: Third year knowledge of Russian.

**RAE 463 RUSSIAN PLAYS (In Russian).** (3)
Reading of selected major Russian plays as a basis for perfection of language skills, involving class discussions, compositions and translation practice. Prereq: Third year knowledge of Russian or consent of instructor.

**RAE 480 RUSSIAN POETRY (in Russian).** (3)
Reading of selected major Russian poems as a basis for perfection of language skills, involving class discussions, compositions and translation practice. Prereq: A third-year knowledge of Russian or consent of instructor.

**RAE 553 TEACHING OF RUSSIAN.** (3)
The course is designed for teachers and prospective teachers of modern foreign languages, with emphasis on Russian. Modern methodology, theory and practice of language pedagogy. Prereq: RAE 304.

**HEBREW**

**RAE 130 ELEMENTARY HEBREW.** (3)
Coverage of Hebrew grammar designed to prepare students to use Hebrew for their particular needs and programs. Lecture, three hours; laboratory, one hour per week.

**RAE 131 ELEMENTARY HEBREW.** (3)
Continuation of RAE 130. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 130 or consent of instructor.

**RAE 324 JUDAISM IN THE MIDDLE AGES.** (3)
Special reference to relation to Western civilization. Emphasis on literature, thought, and religion rather than on political history. The student may concentrate his reading in any of these fields. Given in English, no knowledge of Hebrew necessary.

**RAE 325 JUDAISM IN THE MODERN WORLD.** (3)
The response of Judaism to the problems resulting from "Emancipation," the rise of conservative and reform movements in Germany, emigration to the U.S. and the establishment of Israel. Given in English. No knowledge of Hebrew necessary.

**ARABIC**

**RAE 140 ELEMENTARY MODERN STANDARD ARABIC.** (3)
An introduction to the standard written language of the Arab World. Initial emphasis upon the phonology and script, followed by gradual coverage of the grammar, with exercises in reading, writing, pronunciation, and vocabulary building. Lecture, three hours; laboratory, one hour per week.

**RAE 141 ELEMENTARY MODERN STANDARD ARABIC.** (3)
Continuation of RAE 140. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 140.

**RAE 240 INTERMEDIATE MODERN STANDARD ARABIC.** (3)
A continuation of RAE 141, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 141.

**RAE 241 INTERMEDIATE MODERN STANDARD ARABIC.** (3)
A continuation of RAE 240, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 240.

**CHINESE**

**RAE 150 BEGINNING CHINESE I.** (4)
A course in first semester Chinese language.

**RAE 151 BEGINNING CHINESE II.** (4)
A course in second semester Chinese language. Prereq: RAE 150 or equivalent.

**RAE 250 INTERMEDIATE CHINESE I.** (4)
A course in third semester Chinese language. Prereq: RAE 151 or equivalent.

**RAE 251 INTERMEDIATE CHINESE II.** (4)
A fourth semester course in Chinese language. Prereq: RAE 250 or equivalent.

**OTHER DEPARTMENTAL OFFERINGS**

**RAE 120 BEGINNING JAPANESE I.** (3)
A course in first semester Japanese language.

**RAE 121 BEGINNING JAPANESE II.** (3)
A course in second semester Japanese language. Prereq: RAE 120 or equivalent.

**RAE 220 INTERMEDIATE JAPANESE I.** (3)
A course in third semester Japanese language. Prereq: RAE 121 or equivalent.

**RAE 221 INTERMEDIATE JAPANESE II.** (3)
A course in fourth semester Japanese language. Prereq: RAE 220 or equivalent.

**RAE 260 CLASSICS OF NEAR EASTERN LITERATURE IN TRANSLATION.** (3)
A survey of Near Eastern literature, mainly Islamic. Some selections are chosen on the basis of their universal interest, while others demonstrate literary values and ideals with which Western readers are not ordinarily familiar. Occasional recordings and slide-illustrated lectures are included.

**RAE 328 ISLAMIC CIVILIZATION: THE RISE OF ISLAM TO 1798.** (3)
The rise of Islam and its classical development.

**RAE 330 THE ARAB AWAKENING.** (3)
The Arab World's response to westernization and the resultant reassertion of its cultural role in the modern world.

**RAE 401 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES I (Subtitle required).** (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the period before 1800. Prereq: Junior standing.

**RAE 402 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES II (Subtitle required).** (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the 19th Century. Prereq: Junior standing.

**RAE 403 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES III (Subtitle required).** (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the late 19th Century through the Revolution. Prereq: Junior standing.

**RAE 404 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES IV (Subtitle required).** (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the Soviet period. Prereq: Junior standing.

## RAS Radiation Sciences

**RAS 395 INDEPENDENT WORK IN MEDICAL PHYSICS AND RADIOLOGICAL HEALTH.** (1-3)
Students may select an approved topic for study under the direction of a faculty member in Radiation Sciences. May be repeated to a maximum of six credits. Prereq: Upper division standing in Radiological Health or a related field, and consent of faculty adviser.

**RAS 540 FUNDAMENTALS OF RADIATION BIOLOGY.** (2)
Fundamental aspects of radiation biology. Radiation effects on macromolecules, cells, tissues, organs, and organisms. Prereq: One year of biological sciences, one year of chemistry, one year of physics, and MA 113, or equivalent. (Same as BIO/RM 540.)

**RAS 541 RADIOISOTOPE METHODOLOGY.** (2)
Radioisotope techniques and their application in the biological and medical sciences. Radiation safety, calibration and use of radiation detectors, counting statistics, uptake and assay methods, and applications. Laboratory, five hours per week. Prereq: One year biology, CHE 115, PHY 213, and MA 113, or equivalent. (Same as BIO/RM 541.)

**RAS 545 RADIATION HAZARDS AND PROTECTION.** (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/RM 545.)

**RAS 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS.** (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as PHY/RM 546.)

**RAS 575 APPLIED HEALTH PHYSICS LABORATORY.** (2)
Advanced laboratory analysis of common applied health physics problems. Laboratory, four hours per week. Prereq: PHY/RM/RAS 545 and upper division or graduate standing in a physical science, or consent of instructor.

**RAS 601 ADVANCED RADIATION DOSIMETRY.** (2)
Advanced aspects of the interaction of radiation with matter and specialized topics in the dosimetry of ionizing radiations. Modifications of Bragg-Gray theory for application to megavoltage sources. Beta dosimetry. Specialized calibration techniques. Relative response functions of various media. Nontraditional techniques. Dosimetry of radiation fields including complex spectra. Prereq: PHY 472G, RM 546, or equivalent. (Same as RM 601.)

**RAS 647 PHYSICS OF DIAGNOSTIC IMAGING I.** (3)
Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/RAS 546 or consent of instructor. (Same as RM 647.)

**RAS 648 PHYSICS OF DIAGNOSTIC IMAGING II.** (3)
A continuation of RAS/RM 647. Specialized and advanced topics in nuclear medicine imaging physics, including positron emission tomographic procedures, emerging new modalities, and quality control. Prereq: RM/RAS 647 or consent of instructor. (Same as RM 648.)

**RAS 649 PHYSICS OF RADIATION THERAPY.** (3)
Specialized external beam and brachytherapy treatment planning; advanced Bragg-Gray cavity applications, including Ngas and TG-21; calibration, acceptance testing, and quality control of therapy physics equipment. Prereq: RAS/RM/PHY 546 and RAS/RM 601, or consent of instructor. (Same as RM 649.)

**RAS 651 ADVANCED LABORATORY IN DIAGNOSTIC IMAGING PHYSICS.** (1-3)
Specialized experiments involving the use, calibration, and quality control of x-ray and other diagnostic imaging equipment, and the appropriate use of radiation detectors in diagnostic physics measurements. Laboratory, approximately 30 hours per credit. May be repeated to a maximum of three credits. Prereq: RM/PHY 472G, RAS/RM 546; and concurrent: RAS/RM 647, or equivalent, plus graduate standing in the radiation science program.

**RAS 652 ADVANCED LABORATORY IN NUCLEAR MEDICAL PHYSICS.** (1-3)
Specialized experiments involving the use, calibration, and quality control of nuclear medicine imaging equipment, including both traditional and emerging modalities. Laboratory, approximately 30 hours per credit. May be repeated to a maximum of three credits. Prereq: RAS/RM 648, or equivalent, plus graduate standing in the radiation science program, or consent of instructor. (Same as RM 652.)

**RAS 695 RESEARCH IN THE HEALTH-RELATED RADIATION SCIENCES.** (1-4)
Independent directed research on theoretical and practical problems in the health-related radiation sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing in one of the radiation-related sciences, plus consent of instructor. (Same as RM 695.)

**RAS 710 RADIATION SCIENCE SEMINAR (Subtitle required).** (1)
Topics of current interest relating to radiation and its applications in the areas of radiological medical physics and health physics. May be repeated to a maximum of four credit hours with consent of instructor. Prereq: Graduate standing in a radiation-related science.

**RAS 715 ADVANCED PROBLEMS IN HEALTH-RELATED RADIATION SCIENCES.** (1-4)
Directed study and analysis of problems and their solutions, in areas of major concern to the health-related radiation sciences. May be repeated for a total of up to four semester hours. Prereq: Advanced standing with graduate radiation sciences, plus consent of instructor.

**RAS 849 RADIATION SCIENCES PRACTICUM.** (1-6)
Applied practicum experiences in the radiation sciences. Laboratory, 40 hours per week equals one credit hour. Prereq: Advanced graduate standing in the radiation sciences.

## RC Rehabilitation Counseling

**RC 510 ORIENTATION TO REHABILITATION RESOURCES.** (3)
A study of the breadth of agencies involved in the rehabilitation process: medical, educational, vocational, institutional, and community services for handicapped adults. Relationships among agencies, staffing patterns, funding resources, and gaps and overlaps in services. Two hours lecture per week; two hours laboratory per week. Prereq: Twelve hours of social or behavioral sciences, or graduate standing, or consent of instructor.

**†RC 512 MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS.**

**#RC 515 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES I.** (3)
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as SW 515.)

**#RC 516 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES II.** (3)
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as SW 516.)

**RC 520 PRINCIPLES OF REHABILITATION COUNSELING.** (3)
A comprehensive introduction to rehabilitation as a human service system in modern America. Philosophical, historical, legislative, and organizational structures; rehabilitation programs and related specialties; referral and delivery systems; the rehabilitation process; and professional issues and ethics. Prereq: Twelve hours of social or behavioral science, or graduate standing, or consent of instructor.

**†RC 530 PSYCHO-SOCIAL IMPACT OF DISABILITY.**

**RC 550 SPECIAL TOPICS IN REHABILITATION.** (1-3)
Study of a selected topic within the field of rehabilitation. Topic to be chosen annually in accordance with student needs and interests. May be repeated to a maximum of six credits.

**RC 610 CASE MANAGEMENT IN REHABILITATION COUNSELING.** (3)
Development of rehabilitation counseling skills and techniques. Understanding of behavior, and implementation of appropriate intervention strategies for facilitating persons with disabilities through the rehabilitation process. Case management techniques, ethics, consultation strategies, and specialized counseling skills development. Prereq: EDP 652 and RC 520 or consent of instructor.

**RC 620 VOCATIONAL EVALUATION AND WORK ADJUSTMENT FOR THE SEVERELY DISABLED.** (3)
Methods and techniques used in determining and enhancing the vocational potential of persons with disabilities. Commercial evaluation systems, work adjustment techniques, personal adjustment training, the role of evaluation in rehabilitation. Laboratory experience will include administration and interpretation of vocational tests. Lecture: two hours; laboratory: two hours per week. Prereq: A vocational theories course and RC 520 or consent of instructor.

**RC 630 PLACEMENT SERVICES AND TECHNIQUES IN REHABILITATION COUNSELING.** (3)
Development of skills for placement of persons with disabilities into a variety of settings—competitive employment, supported employment, independent living, philosophy of placement, preplacement analysis, client readiness techniques, job development, job engineering, employer attitudes, business rehabilitation, and social security disability. Occupation information and its use in the placement process. Labor market analysis and procedures for analyzing client residual and transferable work skills. Procedures for employability skills development. Prereq: A vocational theories course, RC 520 and 620 or consent of instructor.

**RC 640 REHABILITATION IN BUSINESS AND INDUSTRY.** (3)
This course is designed to provide students with a comprehensive knowledge of rehabilitation in business environments. Skills to develop a professional working relationship between the rehabilitation professional, employers, the insurance industry, and other professionals will be taught. A thorough overview of worker compensation, related legislation, and other insurance will be presented. The roles and functions of the rehabilitation professional in business rehabilitation counseling will be discussed. Prereq: Twelve hours of study in rehabilitation counseling or consent of instructor.

**RC 710 PRACTICUM IN REHABILITATION COUNSELING.** (3)
Learning experiences under faculty supervision in a community-based or state rehabilitation agency. Application of rehabilitation counseling methods, techniques, and vocational knowledge in working with persons with disabilities. Lecture, two hours; laboratory, 14 hours per week. May be repeated to a maximum of six credits with consent of instructor. Prereq: A minimum of 12 graduate hours in rehabilitation counseling and consent of instructor.

**RC 720 INTERNSHIP IN REHABILITATION COUNSELING.** (3,6,9)
Advanced learning experiences in a rehabilitation setting or agency. Lecture, two hours; laboratory, 14, 28 or 42 hours per week. May be repeated once for a maximum of nine credits. Prereq: A minimum of successful completion of one year in the Rehabilitation Counseling Program and RC 710 and consent of instructor.

**RC 740 ADMINISTRATION, SUPERVISION AND PROGRAM EVALUATION IN REHABILITATION COUNSELING.** (2-3)
Administrative and supervisory aspects of rehabilitation service delivery. Administration, clinical and technical supervision, staffing, and organizational structure(s) of the rehabilitation service delivery system (state, local, and federal). Research, program evaluation, political and ethical aspects of rehabilitation administration and supervision are overviewed. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

**RC 750 REHABILITATION RESEARCH.** (1-3)
Application of basic research principles to the field of rehabilitation. Specific focus on client characteristics, constructs of disability, rehabilitation outcomes, counselor-client variables, and rehabilitation service components. Rehabilitation research and utilization projects, research funding and related grant mechanisms. Prereq: A basic research course and RC 520 or consent of instructor.

**RC 760 CONTEMPORARY PRACTICES IN REHABILITATION.** (1-3)
Contemporary practices including supported employment, independent living, engineering and technology, family matters, client rights, ethical practices, cultural diversity, aging, and present and future trends in the field of rehabilitation. Analysis of legislation, value systems, political and economic fluctuations and research. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

**RC 782 DIRECTED INDEPENDENT STUDY.** (1-3)
Study of an individually selected topic relevant to a student's academic development. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

## RS Religious Studies

**RS 130 INTRODUCTION TO COMPARATIVE RELIGION.** (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as ANT 130.)

**†RS 351 TOPICS IN RELIGIOUS STUDIES: HISTORICAL AND LITERARY (Subtitle required).**

**†RS 352 TOPICS IN RELIGIOUS STUDIES: COMPARATIVE AND SYSTEMATIC (Subtitle required).**

**†RS 395 INDEPENDENT WORK.**

## SCI Science

**#SCI 101 SCIENTIFIC REASONING.** (3)
A lecture/recitation course that stresses quantitative and logical reasoning skills that form the basis of science courses. The course will emphasize how to take verbally presented problems, recognize the mathematical patterns within them, and solve them. Lecture, one hour; recitation, four hours per week. Prereq: Math ACTE greater than or equal to 18, or MA 108R, or Math Placement Test.

## SOC Sociology

**SOC 101 INTRODUCTORY SOCIOLOGY.** (3)
Introduction to the concepts and methods of sociology. Investigation of socialization, group processes, social institutions and social change. Student may not receive credit for both this course and GEN 102.

**SOC 151 SOCIAL INTERACTION.** (3)
Explores the fundamental sociological and social psychological processes underlying human interaction. Focuses on the dynamics of symbolic exchange, the social context and processes shaping it, and examines its effects in the formation and maintenance of social and personality systems. Prereq: SOC 101 or PSY 100 or PY 110 or equivalent social science background.

**SOC 152 MODERN SOCIAL PROBLEMS.** (3)
An introductory course involving an examination of selected social problems of the day. Topics may include family, poverty, education, crime, race, housing, population, health care, industrial development, and power. Prereq: SOC 101 or SOC 151 or equivalent social science background.

**SOC 220 THE COMMUNITY.** (3)
Social organization and process in modern communities; social techniques of community improvement. Prereq: Three hours or equivalent social science background.

**SOC 235 INEQUALITY IN SOCIETY.** (3)
Analysis of the nature, development, and persistence of inequality in various societies. Diverse dimensions of inequality are viewed as the basis for a number of specific social problems in Western and non-Western societies. Social origins of inequality are emphasized. Policy implications are addressed. Prereq: Three hours of sociology or equivalent social science background.

**SOC 249 MASS MEDIA AND MASS CULTURE.** (3)
An examination of the interplay between the technology and content of the mass communications media and culture. Prereq: COM 101 or SOC 101 or its equivalent. (Same as COM 249.)

**SOC 260 POPULATION, RESOURCES AND CHANGE.** (3)
The interrelationships among population variables (size, composition, change), social systems, and environmental conditions will be explored from an issues or problems approach. The tools of population studies will be introduced and used to examine how population influences society and mankind's use of the environment. Prereq: Three hours of sociology or equivalent social science background.

**SOC 302 SOCIOLOGICAL RESEARCH METHODS I.** (3)
Introduction to the research methods as applied to sociological problems. Issues addressed include theory construction, conceptualization, measurements, data presentation, and problems of analysis. Required for majors. Prereq: The introductory level sociology course or GEN 102.

**SOC 303 SOCIOLOGICAL RESEARCH METHODS II.** (3)
Research methods and designs used in sociology. Sociological problems will be analyzed through readings, discussion, use of measurement and analytical procedures, and projects or field work. Required for majors. Prereq: SOC 302 or consent of instructor.

**SOC 335 WOMEN AND MEN IN SOCIETY.** (3)
A sociological study of the sexual division of society with special emphasis on social, structural, and cultural influences. Prereq: SOC 101 or WS 200 or permission of instructor.

**SOC 340 SOCIOLOGY OF U.S. AGRICULTURE.** (3)
A survey of the issues, methodology, and theory related to the sociology of U.S. agriculture. Topics include agrarian social movements, agricultural science and technology, comparative commodity systems, environmental issues and the role of gender in agricultural production. Prereq: Six hours of social science or consent of instructor.

**SOC 342 ORGANIZATIONS IN SOCIETY.** (3)
The roles of formal organizations including bureaucratic structures in society are examined with special attention given to linkages to contemporary social conditions. Relationships among such organizations and basic internal organizational processes are also studied. Prereq: Six hours of social science or consent of instructor.

**SOC 350 TOPICS IN SOCIOLOGY.** (3)
Discussion, readings, and papers focusing on topics in sociology. Directed by a staff member having specific competence in the topics under study. Current research developments in particular sociological subfields will be stressed. May be repeated to a maximum of nine credits. Prereq: Six hours of social science or consent of instructor.

**SOC 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE.** (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/FAM/SW 354.)

***SOC 362 PRACTICUM IN VOCATIONAL EDUCATION, AGRICULTURAL COMMUNICATIONS, AND LEADERSHIP.** (3)
Supervised experiences in schools, businesses and agencies. Required of all Agricultural Education, Communications, Leadership and Home Economics Education majors. Includes observation, participation, experience, field trips, inspection of programs and professional organizations. May be repeated to a maximum of nine credits. Prereq: Junior standing. (Same as AED/AGC/HEE 362.)

**SOC 380 DEVELOPMENT OF NON-WESTERN SOCIETIES.** (3)
An introduction to the sociological study of the development process in non-Western societies. Primary focus is placed on the social, structural, cultural, ecological and demographic factors that differentiate the development of non-Western from Western societies. Prereq: Six hours in social sciences.

**SOC 395 INDEPENDENT WORK.** (1-3)
Study of some special topic by duly authorized students. May be repeated to a maximum of four credits. Prereq: Major or minor, a standing of 3.0 in the department, and learning contract filed with department chair.

**SOC 399 FIELD BASED/COMMUNITY BASED EDUCATION.** (1-15)
A community-based or field-based experience in sociology under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement.

**SOC 409 THE FAMILY.** (3)
A study of the institutions of marriage and the family and an analysis of the various factors and forces at work in our time which are affecting the individual marital relationships. Prereq: Six hours of social science or consent of instructor.

**SOC 418 SOCIAL CHANGE.** (3)
A sociological analysis of the sources, processes and consequences of social change. Prereq: Six hours of social science or consent of instructor.

**SOC 420 COMMUNITY ANALYSIS.** (3)
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: Six hours of social science or consent of instructor.

**SOC 434 SOCIAL CLASSES.** (3)
A systematic treatment of the factors underlying social differentiation and stratification, with particular attention to class and caste; social mobility in American society. Prereq: SOC 101 or consent of instructor.

**SOC 435 POWER AND POLITICS IN SOCIETY.** (3)
Course examines social antecedents and consequences of the distribution of power in society, the institutions in which power is pursued and exercised and the way in which the political arena relates to other institutions. Prereq: Six hours of social science or consent of instructor.

**SOC 436 SOCIOLOGY OF DEVIANT BEHAVIOR.** (3)
A systematic examination of the various types of social disorganization with particular emphasis upon the sociological explanation of underlying factors. Prereq: Six hours of social science or consent of instructor.

**SOC 437 CRIMINOLOGY.** (3)
A study of general conditions as to crime and delinquency, of measures of punishment and reform of offenders, of criminal procedure and its possible reform and of measures for the prevention of crime. Prereq: Six hours of social science or consent of instructor.

**SOC 438 JUVENILE DELINQUENCY.** (3)
Studies of the extent, ecological distribution, and cause of delinquency in contemporary American society, including a critical examination of trends and methods of treatment. Prereq: Six hours of social science or consent of instructor.

**SOC 439 SPECIAL TOPICS IN CRIME AND DELINQUENCY (Subtitle required).** (3)
An analysis of issues and problems central to the study of crime, deviance, and social control in society. Topics may include the analysis of law and society, organized crime, the professional criminal, corrections, or substance abuse. May be repeated once for credit under different subtitle. Prereq: Introductory level sociology course plus one of the following: SOC 436, SOC 437, SOC 438G or consent of instructor.

**SOC 442G TOPICS IN WORK AND SOCIETY (Subtitle required).** (3)
An analysis of major occupational categories and their relationships to technological, organizational, and societal conditions. Topics may include studies of worker and societal attitudes toward work, problems in occupational mobility and status attainment, alternatives to work in bureaucratic settings, labor/management relations, or the professionalization of the work force. May be repeated once for credit under a different subtitle. Prereq: Six hours of social science or consent of instructor.

***SOC 444 SOCIAL PSYCHOLOGY.** (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: One of the following: PSY 100, SOC 101, or GEN 102. (Same as PSY 444.)

**SOC 449 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION.** (3)
The relationship between the organization of modern society and its communication media. Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: SOC/COM 249 or its equivalent. (Same as COM/EDC 449.)

**SOC 451G FOUNDATIONS OF SOCIOLOGICAL THEORY.** (3)
A survey of the development of scientific and humanistic theories in the study of human social interaction and society from The Enlightenment to the present. Works of theorists such as Durkheim, Marx, Weber and Mead will be considered. Emphasis is on the growth of sociology as a discipline. Required for majors. Prereq: Six hours of social science or consent of instructor.

**SOC 452G CONTEMPORARY SOCIAL THEORY.** (3)
A survey and analysis of the major schools of contemporary sociological theory. Works of major theorists are included. Emphasis is on the conceptual structure of the different theories and the way in which they are applied in contemporary sociological analysis. Prereq: SOC 451G.

**SOC 460 AMERICAN POPULATION.** (3)
The study of fertility, mortality and migration as related to population size, growth and distribution, and how population dynamics are related to social status, the family, family planning, urbanization, environment, and policy issues. Prereq: SOC 101 or SOC 260 or consent of instructor.

**SOC 499 TOPICAL SENIOR SEMINAR (Subtitle required).** (3)
Course is especially designed for seniors. Readings, discussions and papers will focus on current research dealing with selected issues of significance in American society. May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor, senior standing, and one introductory level sociology course.

**SOC 501 POPULATION ANALYSIS.** (3)
Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. Prereq: Six hours of social science or consent of instructor.

**SOC 509 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE.** (3)
A study of American family experience and values from its preindustrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as FAM 509, HIS 596.)

**SOC 517 RURAL SOCIOLOGY.** (3)
Systematic study of the structure and function of family, informal and locality groups, social strata, religious, educational, political and occupational groups in rural society. Prereq: Six hours of social science or consent of instructor.

**SOC 525 RELIGION, SOCIETY AND CULTURE.** (3)
An analysis of the structure, function, and process of religion in its societal and cultural context. Major emphasis is placed on the interaction between religious organizations and the societies in which they operate. Prereq: Six hours of social science or consent of instructor.

**SOC 527 SOCIETY AND HEALTH.** (3)
The study of human behavior in illness and of medicine as a complex form of social organization from historical, cross-cultural and contemporary perspectives. Prereq: Consent of instructor. (Same as BSC 527.)

**SOC 528 DIMENSIONS OF AGING.** (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate standing. (Same as PSY/ANT 528.)

**SOC 532 RACE AND ETHNIC RELATIONS.** (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: Six hours of social science or consent of instructor. (Same as EPE 532.)

**SOC 533 SOCIAL ANTHROPOLOGY.** (3)
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: Six hours of social science or consent of instructor. (Same as ANT 533.)

**SOC 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION.** (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: Six hours of social science or consent of instructor. (Same as ANT 534.)

**SOC 542 HUMAN RELATIONS IN ADMINISTRATION OF ORGANIZATIONS.** (3)
Sociological and social psychological analysis of social structure and environment, leadership, power, authority, decision making, communication, satisfaction, and stress in organizational and administrative activity. Prereq: Six hours of social science or consent of instructor.

**SOC 546 SOCIAL FACTORS IN MENTAL HEALTH.** (3)
The significance of social, psychological and cultural factors in the recognition and course of mental health problems; the organization of mental health services in society. Prereq: Consent of instructor. (Same as BSC 546.)

**SOC 547 SOCIAL AND PSYCHOLOGICAL ASPECTS OF APPAREL.** (3)
An advanced study of the social, psychological factors which influence apparel and apparel use with particular emphasis on research. Prereq: HET 247 for majors only. Non-majors: three hours in sociology or anthropology and three hours in psychology. (Same as DMT 547.)

**SOC 565 SPECIAL PROBLEMS IN SOCIOLOGY.** (1-3)
Supervised individual study in selected subfields of sociology, population, community, organizations, social attitudes, deviant behavior, and social change are among the fields for investigation. May be repeated to a maximum of six credits. Prereq: Six hours of social science and learning contract filed with department chair.

**SOC 603 SEMINAR IN TEACHING SOCIOLOGY.** (3)
The purpose of this course is to aid the development of student's teaching styles and strategies. Topics for class readings and discussions include philosophies and theories of teaching as well as specific teaching strategies and techniques. Seminar members each design a course they someday hope to teach, constructing a course syllabus, choosing readings and designing assignments, exercises, and examinations. In addition, seminar members prepare and deliver presentations to the seminar as well as to ongoing undergraduate classes. Prereq: Graduate standing in sociology, or consent of instructor.

**SOC 605 VALUES, RESEARCH, AND PUBLIC POLICY.** (1)
Discussion-oriented course focusing on the following issues: the role of knowledge in policy-making; conflicts between the production of "expert" knowledge and democratic participation in the public sphere; ethical and professional value commitments; implicit "knowledge interest" of methodological styles. Lecture, three hours per week for five weeks. Prereq: Consent of instructor.

**SOC 606 APPLIED SOCIAL RESEARCH: AN OVERVIEW OF TYPES, USES AND DESIGNS.** (1)
An introduction to the requirements and major types and methods of applied social research. Lecture, three hours per week for five weeks. Prereq: Consent of instructor.

**SOC 607 ADMINISTERING APPLIED SOCIAL RESEARCH PROGRAMS.** (1)
A case study approach to examining administrative and management issues and skills confronted in the conduct of applied social research, including proposal development, client-researcher relationships, budgeting, staffing, ethical and legal issues. Lecture, three hours per week for five weeks. Prereq: Consent of instructor.

**SOC 608 INTERPRETING APPLIED SOCIAL RESEARCH.** (1)
Overview of principles and techniques for communication of sociological research findings to nonacademic audiences. Experts in various fields will present short lectures and multi-media displays. Time will be provided for student exercises. Lecture, three hours per week for five weeks. Prereq: Consent of instructor.

**SOC 610 PROSEMINAR IN COMPLEX ORGANIZATION.** (3)
A systematic examination of the sociological concepts, literature and current developments in the field of complex organizations. Prereq: Consent of instructor.

**SOC 622 TOPICS AND METHODS OF EVALUATION.** (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EDP/EPE 620.)

**SOC 630 PROSEMINAR IN DEVIANT BEHAVIOR.** (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of deviant behavior. Prereq: Graduate standing; SOC 436 or equivalent.

**SOC 635 PROSEMINAR IN WORK, GENDER, AND INEQUALITY.** (3)
A systematic examination of the sociological concepts, literature and current developments in the sociology of work, gender, and inequality. Prereq: Consent of instructor.

**SOC 637 SOCIOCULTURAL DIMENSIONS OF ECONOMIC DEVELOPMENT.** (3)
Examination of social, cultural and economic conditions in lesser developed countries. Discussion of the various socioeconomic and cultural theories of change and developments, and of alternative policies for the world of the future. Considers the possible roles for social scientists in policy formulation and application. Prereq: Six graduate credits in social sciences or consent of instructor. (Same as ANT 637.)

**SOC 638 FOOD SYSTEMS AND AGRARIAN CHANGE.** (3)
An examination of the way in which the organization of food procurement, distribution, and consumption in developing countries has affected and been affected by agrarian change. Prereq: Consent of instructor. (Same as ANT 638.)

**SOC 640 SCIENCE, AGRICULTURE, AND DEVELOPMENT.** (3)
An in-depth examination of the interrelations between science, agriculture, and development. Both domestic and international issues are explored. Prereq: Graduate standing in the social or agricultural sciences. (Same as ANT 640.)

**SOC 641 GENDER ISSUES IN DEVELOPMENT.** (3)
An examination of gender issues in domestic and international development. Prereq: Graduate standing in the social or agricultural sciences or permission of the instructor. (Same as ANT 641.)

**SOC 650 CONCEPTS AND THEORIES IN SOCIOLOGY.** (3)
Consideration of central conceptual issues underlying the construction of various sociological theories and their explanatory frameworks. A systematic exploration of the development and application of central conceptual frameworks of the discipline. Prereq: Consent of instructor.

**SOC 651 SOCIOLOGICAL THEORY IN TRANSITION.** (3)
Intensive examination of the ideas and continuing significance of leading nineteenth century sociological theorists. The work of Marx, Weber, Durkheim, and Simmel is given particular attention. Discussion concerns the contents of their writings, the sociohistorical context in which they were developed, and their applicability to contemporary society. Prereq: SOC 650 or consent of instructor.

**SOC 653 FAMILY THEORY.** (3)
A survey and critical evaluation of family macro and micro theories. The course will include (a) a historical perspective on the development of family theory; (b) the prevalent macro theories/conceptual frameworks in use in the field; and (c) current trends in the development of micro, or middle-range, family theories. Prereq: FAM 652. (Same as FAM 653.)

**SOC 661 SOCIOLOGY OF EDUCATION.** (3)
A study of schooling and education using basic analytic paradigms of sociology. Emphasis on schools as formal organizations and education in a changing, technologically oriented and stratified society. Prereq: SOC 101 or equivalent. (Same as EPE 661.)

**SOC 680 METHODS OF SOCIAL INVESTIGATION.** (4)
An overview of the various methods and techniques, both quantitative and qualitative, used by sociologists, including experience in the use of various methods. Lecture, three hours; laboratory, two hours per week. Prereq: Six graduate hours in sociology or consent of instructor.

**SOC 681 RESEARCH DESIGN AND ANALYSIS.** (3)
Problem definition and delimitation, design appropriate to problem and data, and selection of appropriate analysis techniques; critical examination of representative research studies. Prereq: Elementary statistics.

**SOC 682 SPECIAL TOPICS IN ADVANCED SOCIOLOGICAL METHODS.** (1-3)
A focused treatment of one or more issues, topics, or problems in sociological methods such as time-series analysis, causal analysis, participant observation, conduct of experiments, sociohistorical methods, scale construction, etc. May be repeated to a maximum of nine credits. Prereq: SOC 681 or equivalent.

**SOC 684 FARMING SYSTEMS RESEARCH METHODS.** (3)
A critical analysis of the concepts, methods, and practices of farming systems research. Design and carry out an FSR project. Prereq: Graduate standing in the social or agricultural sciences. (Same as ANT 684.)

**SOC 691 STRUCTURE OF U.S. AGRICULTURE.** (3)
This seminar will analyze the structural transformation of U.S. agriculture in the 19th and 20th centuries in the context of sociological theory. Emphasis is given to key historical transitions, changing social relations of production and state policy. Such emphases provide a framework for understanding the historical roots and future prospects for the socioeconomic problems confronting contemporary U.S. agriculture. Prereq: Graduate standing in sociology/agricultural economics or consent of instructor. (Same as AEC 691.)

**SOC 710 SPECIAL TOPICS IN SOCIAL ORGANIZATION.** (1-3)
A focused treatment of one or more issues, topics, or problems in the field of social organization such as selected aspects of political organization, inequality, opportunity structures, complex organization or social movements. May be repeated to a maximum of nine credits. Prereq: SOC 610 or equivalent or consent of instructor.

**SOC 730 SPECIAL TOPICS IN DEVIANT BEHAVIOR.** (1-3)
A focused treatment of one or more issues, topics, or problems in the field of deviant behavior such as delinquency, sociology of law, criminal justice and corrections, radical criminology, or methodological issues in deviance research. May be repeated to a maximum of nine credits. Prereq: SOC 630 or equivalent or consent of instructor.

***SOC 735 TOPICAL SEMINAR IN WORK, GENDER, AND INEQUALITY (Subtitle required).** (3)
Advanced study of topics of current importance in the sociology of work, gender, and inequality, such as labor force participation, work organization and process structure of labor markets, gender, and work, social classes, race and ethnic stratification, and theories of work, gender, and inequality. May be repeated under different subtitles to a maximum of 12 credits. Prereq: SOC 635 or consent of instructor.

**SOC 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**SOC 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**SOC 750 SPECIAL TOPICS IN SOCIAL CHANGE AND DEVELOPMENT.** (1-3)
A focused treatment of one or more issues, topics, or problems in the field of social change and development, such as modernization, dependency, the role of science and technology in development, or alternative futures. May be repeated to a maximum of nine credits. Prereq: SOC 650 or equivalent or consent of instructor.

**SOC 751 SEMINAR IN SOCIOLOGICAL THEORY.** (3)
A survey of major theoretical perspectives in modern sociology, focusing on twentieth century developments in European and American sociological theory. The principal contributions of selected theorists are considered and their role in the establishment of contemporary sociology is assessed. Prereq: SOC 650 or consent of instructor.

**SOC 752 SEMINAR IN FAMILY THEORY CONSTRUCTION.** (3)
An advanced seminar focusing on the definition, evaluation and construction of family theory. Inductive and deductive theory construction strategies are surveyed, evaluated and applied. Prereq: FAM 652. (Same as FAM 752.)

**SOC 766 CONCEPTS IN MEDICAL SOCIOLOGY.** (3)
A review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory and to concepts and research on health-related problems of society. Prereq: Consent of instructor. (Same as BSC 766.)

**SOC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**SOC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

***SOC 772 TOPICAL SEMINAR IN SOCIOLOGY.** (3)
Advanced study of topics of current importance in sociology, such as structural strain and social change, game theory, decision processes, communication and power structure. May be repeated under different subtitles to a maximum of 12 credits. Prereq: At least nine hours in the social sciences, preferably in sociology.

**SOC 773 TOPICAL SEMINAR.** (3)
Analysis of topics of scientific interest in rural sociology, selected from such fields as the following: criticism of research; sociological factors in land use; migration; rural social ecology of the South; highland societies. May be repeated to a maximum of six credits.

***SOC 776 SEMINAR IN DEPENDENCY BEHAVIOR.** (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as ANT/PSY/BSC 776.)

**SOC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY.** (3)
Advanced study of contemporary concepts of mental health and mental illness, and their historical development; major forms of response to mental illness. Prereq: Consent of instructor. (Same as BSC 777.)

**SOC 779 TOPICAL SEMINAR IN SOCIAL PSYCHOLOGY.** (3)
Each semester some topic in the field of social psychology such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: PSY 444G. (Same as PSY 779.)

**SOC 780 SPECIAL PROBLEMS IN SOCIOLOGY.** (1-6)
May be repeated to a maximum of 10 credits.

**SOC 785 COMPARATIVE HEALTH CARE SYSTEMS.** (3)
This seminar will focus on concepts, issues, and research pertaining to health care systems in comparative perspective. It will deal with the following questions. (1) What are the core analytical dimensions of a health care system? (2) How do health care systems connect with the other institutional domains of a society, with its value-system, and with its major cultural and historical trends? and (3) Within the health care system, how are the main constituents of modern medicine related to each other? Prereq: Consent of instructor. (Same as BSC 785.)

**SOC 790 RESEARCH IN RURAL SOCIOLOGY.** (1-3)
Individual graduate research with correlated study of rural social research types and methods. May be repeated for a maximum of six credits.

**SOC 792 RESEARCH IN SOCIOLOGY.** (1-6)
Individual research and reading in particular fields of sociology, under staff supervision. Open to advanced students who are prepared for intensive study beyond that offered in regular classes in each field. May be repeated to a maximum of 10 hours.

**SOC 797 COMMUNITY DEVELOPMENT PRACTICUM.** (1-9)
Supervised experiences in the application of sociological concepts and techniques to problems of program development in a community or state agency, organization, or department. Learning contract required. May be repeated to a maximum of 9 credits. Prereq: Approval of the Director of the Community Development Program.

# SPI Spanish and Italian Languages and Literatures

## SPANISH

**SPI 011 SPANISH READING FOR GRADUATE STUDENTS.** (0)
Designed for those graduate students who wish to acquire a rapid reading knowledge of Spanish. Emphasis on rapid vocabulary building, the Spanish idiom, and the verb systems. Lecture, three hours.

**SPI 101 ELEMENTARY SPANISH I (spoken approach).** (4)
This course is designed to introduce basic modes of communication in Spanish. The emphasis is on everyday language which the students will learn by applying essential grammatical structures to vocabulary. Both listening and reading comprehension are stressed. The textbook provides instructional assignments and self-correctional exercises. Not open to students who have credit for SPI 141.

**SPI 102 ELEMENTARY SPANISH II (spoken approach).** (4)
A continuation of SPI 101. Not open to students who have credit for SPI 142. Prereq: SPI 101 or consent of the department and placement test.

**SPI 115 CULTURE OF MEXICO FOR NON-SPANISH SPEAKERS.** (3)
A course designed to introduce students to the basic cultural patterns of Mexico through readings and travel. To be offered only during the intersession or summer session in Mexico. Appropriate faculty leadership is provided.

**SPI 141 ELEMENTARY SPANISH I (reading approach).** (3)
The study of the basic principles of the language through grammar, with emphasis on rapid development of reading and comprehension skills. Offered by correspondence only. Not open to students who have credit for SPI 101.

**SPI 142 ELEMENTARY SPANISH II (reading approach).** (3)
A continuation of SPI 141. Selected readings. Offered by correspondence only. Not open to students who have credit for SPI 102. Prereq: SPI 141 or consent of department and placement test.

**SPI 201 INTERMEDIATE SPANISH III (spoken approach).** (3)
Review and reinforcement of grammatical and phonological patterns. Emphasis will be given to developing reading, listening and speaking skills based on contemporary texts. Not open to students who have credit for SPI 241. Prereq: SPI 102 or consent of department and placement test.

**SPI 202 INTERMEDIATE SPANISH IV (spoken approach).** (3)
Continuation of SPI 201. Not open to students who have credit for SPI 242. Prereq: SPI 201 or consent of department and placement test.

**SPI 210 SPANISH COMPOSITION.** (3)
This course is designed for Spanish majors and minors and for those students who wish to perfect their knowledge of Spanish grammar. Concentration on more sophisticated structures of Spanish syntax, and further vocabulary expansion. Prereq: SPI 202 or equivalent or consent of chair.

**SPI 211 SPANISH CONVERSATION.** (3)
Sections limited to no more than 15 students each. Oral-aural practice in the spoken language. Special emphasis placed on the acquisition of idioms and fundamental conversational vocabulary. Prereq: SPI 202 or equivalent or consent of chair.

**SPI 215 CULTURE OF MEXICO.** (3)
A course designed to introduce students to the basic cultural patterns of Mexico and to improve their oral proficiency in Spanish. To be offered only during the intersession or summer session in Mexico. Appropriate faculty leadership is provided. Prereq: SPI 201 or equivalent or consent of chair. With permission of the chair, SPI 102 may also be considered a prerequisite.

**SPI 241 INTERMEDIATE SPANISH III (reading approach).** (3)
Readings of selected Spanish and Spanish American works and rapid review of principles of grammar. Emphasis on reading comprehension. Not open to students who have credit for SPI 201. Prereq: SPI 142 or consent of department and placement test.

**SPI 242 INTERMEDIATE SPANISH IV (reading approach).** (3)
A continuation of SPI 241. Several options will be offered, including culture, literature and contemporary problems. Topics for each section to be announced in the *Schedule of Classes*. Not open to students who have credit for SPI 202. Prereq: SPI 241 or consent of department and placement test.

**SPI 261 MASTERPIECES OF HISPANIC LITERATURE IN TRANSLATION.** (3)
A study of selected writers of Spain and Latin America from the Middle Ages to the present.

**SPI 263 MASTERPIECES OF ITALIAN LITERATURE IN TRANSLATION.** (3)
A study of representative Italian writers and their works in a European context, using anthologies and complete texts where necessary.

**SPI 302 BUSINESS AND TECHNICAL SPANISH.** (3)
A course designed to acquaint the student with Spanish language as used in business, and may include discussion of Spanish vocabulary for the social sciences and technical fields such as agriculture, engineering, medicine, and nursing. Prereq: SPI 210 or equivalent.

**SPI 310 STYLISTIC STUDIES IN SPANISH.** (3)
Practice in translation of English prose into Spanish, including treatment of advanced grammar and style. Prereq: SPI 210, 211 or equivalent.

**SPI 311 ADVANCED SPANISH CONVERSATION.** (1)
Intensive practice in oral Spanish, emphasizing refinement of intonation, and idiomatic expression. Designed to increase and maintain oral fluency in Spanish. May be repeated to a maximum of three credits. Not open to native speakers of Spanish. Prereq: SPI 211 or equivalent.

**SPI 312 CIVILIZATION OF SPAIN.** (3)
This course is designed to acquaint students with Spain's intellectual, cultural and historical development. Conducted primarily in Spanish. Prereq: SPI 210 and 211, or consent of instructor.

**SPI 314 CIVILIZATION OF SPANISH AMERICA.** (3)
This course is designed to acquaint students with Spanish America's intellectual, cultural and historical development. Conducted primarily in Spanish. Prereq: SPI 210 and 211, or consent of instructor.

**SPI 320 LITERATURE, LIFE AND THOUGHT OF SPAIN.** (3)
A study of the literature that reflects the life and thought of Spain from the Middle Ages to the present. Lecture and discussion in Spanish. Prereq: SPI 210 and SPI 211, or consent of instructor.

**SPI 322 LITERATURE, LIFE AND THOUGHT OF SPANISH AMERICA.** (3)
A study of the literature that reflects the life and thought of Spanish America from the Colonial period to the present. Lecture and discussion in Spanish. Prereq: SPI 210 and SPI 211, or consent of instructor.

**SPI 324 THE THEATRE IN SPAIN AND SPANISH AMERICA.** (3)
A study of the theatre in Spain and Spanish America, stressing developments in the dramatic arts as seen in the works of major dramatists of the Golden Age, Modern Period, and twentieth century Spanish America. Conducted primarily in Spanish. Prereq: SPI 210 and 211.

**SPI 326 HISPANIC POETRY.** (3)
Introduction to Spanish metrics and versification, and the forms and techniques of Hispanic poetry with analysis, explication, and interpretation of poetic texts by major poets from Spain and Spanish America. Conducted primarily in Spanish. Prereq: SPI 210 and 211.

**SPI 375 STUDY IN SPAIN.** (1-8)
Study of Spanish language, life, and culture at the University of Seville, Spain. Emphasizes Spanish language and literature. May include escorted visits to appropriate sites, reinforced by formal lectures and directed study. May be repeated to a maximum of eight credits. Prereq: SPI 201 and consent of department chair.

**SPI 397 INDEPENDENT WORK IN SPANISH.** (3)
May be repeated once. Prereq: Major and standing of 3.0 in the department.

**SPI 399 FIELD BASED/COMMUNITY BASED EDUCATION.** (1-15)
A community- or field-based experience in Spanish under the supervision of a faculty member. Approval of the Arts and Sciences dean required for credits above six per semester. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Permission of the instructor and departmental chairperson; completion of departmental learning agreement.

**SPI 400 SPECIAL TOPICS IN HISPANIC LITERATURES AND LANGUAGES (Subtitle required).** (3)
Detailed investigation of a given topic, author, or theme. Topics announced the preceding semester. Conducted in Spanish. May be repeated to a maximum of six credits when identified by different subtitles. Prereq: One 300-level Spanish literature course.

**SPI 411 ADVANCED SPANISH LANGUAGE.** (3)
A course designed to practice language skills at an advanced level. Preparation of oral and written presentations in Spanish. Selected readings will be treated for their language content. Conducted primarily in Spanish. Prereq: SPI 210 and 211, and a 300-level Spanish course.

**SPI 430 THE WORKS OF CERVANTES.** (3)
Study and analysis of Miguel de Cervantes' *Don Quijote*, the Novelas ejemplares, and selected dramatic works. Conducted in Spanish. Prereq: One 300-level Spanish literature course.

**SPI 434 SPANISH LITERATURE OF THE 20TH CENTURY.** (3)
A study of the works of the Generation of 1898 and representative works of recent writers. Conducted in Spanish. Prereq: One 300-level Spanish literature course.

**SPI 438G LITERATURE OF SOCIAL PROTEST IN SPANISH AMERICA.** (3)
Analysis and study of the use of sociopolitical elements in selected works by Spanish-American poets, novelists and dramatists. Conducted in Spanish. Prereq: One 300-level Spanish literature course.

**SPI 501 SPANISH PHONETICS, PRONUNCIATION AND PHONEMICS.** (3)
Introduction to Spanish descriptive linguistics with intensive study of variant speech sounds and established norms in the major cultural areas of the Hispanic world with discussions of the theory and isolation of phonemes. Prereq: SPI 210 and SPI 211, and a 300-500 level Spanish course.

**SPI 502 SURVEY OF THE SPANISH LANGUAGE.** (3)
The development of the Spanish language from the Vulgar Latin stages to the modern period. Special emphasis is placed on the Spanish of the 12th through the 14th centuries. Representative texts are analyzed. Prereq: SPI 210 and 211, and a 300-500 level Spanish course.

**SPI 504 ADVANCED SPANISH GRAMMAR AND COMPOSITION.** (3 ea.)
A study of the finer points of Spanish grammar. Prereq: SPI 210 and 211, and a 300-500 level Spanish course.

**SPI 506 INTRODUCTION TO COMPARATIVE SPANISH, PORTUGUESE, AND ITALIAN LINGUISTICS.** (3)
An introduction to the historical development of Spanish, Portuguese and Italian from a common source, with an emphasis on the comparison of related lexical, phonological and morphological items. Prereq: Reading knowledge of Spanish or Italian (fourth semester of course work).

**SPI 512 SPANISH CULTURE THROUGH THE 17TH CENTURY.** (3)
A study of the major historical, social, cultural, and intellectual movements in Spain from the Middle Ages through the Golden Age. Prereq: Three credits of Spanish on the 300 level, or equivalent.

**SPI 513 MODERN SPANISH CULTURE.** (3)
A study of the historical, social, cultural, and intellectual trends in Spain from 1700 to the present. Prereq: Three credits of Spanish on the 300 level or equivalent.

**SPI 514 STUDIES IN SPANISH AMERICAN CULTURE.** (3)
A study of the major historical, social, cultural, and intellectual movements in Spanish America from pre-Columbian times to the present. Prereq: Three credits of Spanish on 300 level, or equivalent.

**SPI 518 HISPANIC FILM.** (3)
A history of Spanish and Latin American film from the beginnings to the present, emphasizing the political, social, economic and cultural contexts of the Hispanic world. Viewing of films (in Spanish) outside of class is required. Class taught in Spanish. Prereq: Three credits of Spanish on the 300-500 level or equivalent.

**SPI 522 SURVEY OF THE COMEDIA.** (3)
A survey of the masterworks of Lope de Vega and his contemporaries. Prereq: One 300-level Spanish literature course.

**SPI 532 THE GENERATION OF 1898.** (3)
Studies in intellectual thought, literary work and special contributions of the writers of the generation of 1898. Prereq: One 300-level Spanish literature course.

**SPI 541 SPANISH AMERICAN SHORT STORY.** (3)
A study of the Spanish-American short story throughout its development. Prereq: One 300-level Spanish literature course.

**SPI 553 TEACHING OF SPANISH.** (3)
The course is designed for teachers and prospective teachers of modern foreign languages, with emphasis on Spanish. Modern methodology, theory and practice of language pedagogy.

**SPI 601 OLD SPANISH: PHONOLOGY AND PALEOGRAPHY.** (3)
An intensive study of the phonology of Spanish with emphasis on the various linguistic backgrounds that developed it. Examination and study of medieval texts with exercises in paleographical transcription of medieval manuscripts. Prereq: SPI 501 or consent of instructor.

**SPI 603 CRITICAL AND HISTORICAL PERSPECTIVES ON MEDIEVAL, RENAISSANCE AND GOLDEN AGE SPANISH LITERATURE.** (3)
Studies of selected Medieval and Golden Age Spanish works in light of their literary, historical, and cultural importance. Emphasis on critical approaches to text.

**SPI 604 CRITICAL AND HISTORICAL PERSPECTIVES ON MODERN SPANISH LITERATURE.** (3)
Studies of selected modern Spanish works (18th century to the present) in light of their literary, historical, and cultural importance. Emphasis on critical approaches to text.

**SPI 605 CRITICAL AND HISTORICAL PERSPECTIVES ON SPANISH AMERICAN LITERATURE.** (3)
Studies of selected Spanish American works (Colonial Period to the present) in light of their literary, historical, and cultural importance. Emphasis on critical approaches to text.

**SPI 611 MEDIEVAL SPANISH LITERATURE I.** (3)
A survey of Medieval Spanish literature from the beginning to the end of the 13th century. (SPI 612 is intended to cover the 14th and 15th centuries.)

**SPI 612 MEDIEVAL SPANISH LITERATURE II.** (3)
A survey of Medieval Spanish literature of the 14th and 15th centuries.

**SPI 613 SPANISH EPIC AND LONG NARRATIVE POETRY.** (3)
Study of the foundations of Spanish oral epic tradition with references to its parallels in other national literatures and its influences on other genres. Analysis of the *Poema de Mio Cid*, with readings in the important cycles of Spanish epicry and long narrative poetry through the 16th century.

**SPI 615 SPANISH POETRY OF THE 13TH, 14TH AND 15TH CENTURIES.** (3)
Development of lyric poetry from the earliest beginnings to the 15th Century. The *harchas*, Galician-Portuguese, lyric, sacred lyric and the poets of the *concioneros*, exclusive of the ballad.

**SPI 616 EARLY BRIEF NARRATIVE— 13TH, 14TH, 15TH CENTURIES.** (3)
The rise and development of the brief narrative in prose and rise of the oriental apologue, hagiographical tales and Greco-Roman fables.

**SPI 617 SPANISH MEDIEVAL AND RENAISSANCE DRAMA.** (3)
Readings, lectures and discussions on the origin of the Spanish vernacular drama and its growth through the 16th century.

**SPI 622 CERVANTES I.** (3)
A study of *Don Quixote*: collateral readings in Cervantine scholarship and criticism.

**SPI 624 THE SPANISH NOVEL FROM CERVANTES TO ROMANTICISM.** (3)
The post-Cervantine novel, including works by Lope, Tirso, Quevedo, Gracian, Isla and lesser novelists and novella-writers of 17th and 18th centuries.

**SPI 625 MYSTIC AND ASCETIC WRITERS OF THE 16TH AND 17TH CENTURIES.** (3)
A survey of ascetic and mystic writers including among others: Juan de Avila, Luis de León, Luis de Granada, Santa Teresa, San Juan de la Cruz.

**SPI 626 LOPE DE VEGA AND TIRSO DE MOLINA.** (3)
Selected dramatic and nondramatic works of Lope de Vega and Tirso de Molina.

**SPI 628 THE THEATRE OF CALDERON DE LA BARCA.** (3)
The dramatic works and techniques of Calderón de la Barca.

**SPI 629 SPANISH POETRY OF THE 16TH AND 17TH CENTURIES.** (3)
An examination of several schools and forms of poetry, both lyric and narrative, in this period.

**SPI 631 THE ROMANTIC MOVEMENT IN SPAIN.** (3)
An examination of the meaning of the term "romanticism," with a study of representative Spanish works of the Romantic period. Prereq: Graduate standing.

**SPI 632 SPANISH DRAMA FROM THE GENERATION OF 1898 TO THE PRESENT.** (3)
Representative works of the major dramatists and dramatic trends from Benavente and his contemporaries through García Lorca, Casona and Buero Vallejo.

**SPI 633 THE SPANISH NOVEL OF THE 19TH CENTURY.** (3)
A study of the major Spanish novelists of the 19th century; particular attention to the aims and techniques of literary realism and naturalism.

**SPI 634 PROSE FICTION FROM THE GENERATION OF 1898 TO THE PRESENT.** (3)
Studies in most important novels and short stories of the later part of the modern period, produced from 1930 to the present.

**SPI 635 THE SPANISH ESSAY FROM THE 18TH CENTURY TO THE PRESENT.** (3)
An examination of the intellectual preoccupations of Modern Spain as expressed in the essay from the 18th century to the present.

**SPI 636 SPANISH POETRY FROM THE 18TH CENTURY THROUGH THE GENERATION OF 1898.** (3)
A study of the major poets, trends and approaches to Spanish poetry from the Neoclassic period through Unamuno and Antonio Machado. Prereq: Graduate standing.

**SPI 637 SPANISH POETRY FROM THE GENERATION OF 1927 TO THE PRESENT.** (3)
Studies of the poetry of the later part of the modern period, from Jiménez, Salinas and Guillén to current poets. Prereq: Graduate standing.

**SPI 641 SPANISH AMERICAN DRAMA.** (3)
A study of dramatic production in Spanish America from the missionary theater to the present, accentuating the work of later authors beginning with Florencio Sánchez.

**SPI 642 SPANISH AMERICAN POETRY: COLONIAL PERIOD TO INDEPENDENCE.** (3)
Representative works of the principal poets from the Colonial Period through the Neo-Classical.

**SPI 643 SPANISH AMERICAN POETRY: 1800-1910.** (3)
Poetry from Romanticism through Modernism.

**SPI 644 SPANISH AMERICAN POETRY: 1910 TO PRESENT.** (3)
Post-Modernism, the Vanguardia, and contemporary poets.

**SPI 645 SPANISH AMERICAN NOVEL: 1800-1910.** (3)
The major writers from Romanticism through Modernism.

**SPI 646 SPANISH AMERICAN NOVEL: 1910-1940.** (3)
The novel of the Mexican Revolution, the *criollistas*, *indigenistas*, *novela gauchesca*, and the psychological novel.

**SPI 647 SPANISH AMERICAN NOVEL: 1940 TO PRESENT.** (3)
The new novel in Spanish America; Asturias, Fuentes, Carpentier, Cortázar, García Márquez and others.

**SPI 648 LITERARY CURRENTS IN CONTEMPORARY SPANISH AMERICAN FICTION.** (3)
An examination of the outstanding works of Spanish American authors during the past ten years, with emphasis on literary innovations and new currents in the novel, short story, poetry and drama.

**SPI 649 SPANISH AMERICAN ESSAY.** (3)
A comprehensive study of the principal currents of thought in the Spanish American essay, with special attention to the *americanistas*.

**SPI 651 BIBLIOGRAPHY AND METHODS OF RESEARCH.** (3)
Investigation of Spanish bibliography and modern methods of research designed to provide guidance to the graduate student leading to an understanding of research methods and publication. Taught by various members of the staff, with each member dealing with his own specialty.

**SPI 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**SPI 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**SPI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**SPI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**SPI 770 SEMINAR IN SPANISH STUDIES.** (3)
A seminar designed to provide intensive study of a literary, scholarly, or intellectual problem of Spanish letters not covered as such in any of the above listed offerings. May be repeated to a maximum of six credits. Prereq: 21 semester hours of college Spanish.

**SPI 772 SEMINAR IN MEDIEVAL SPANISH LITERATURE.** (3)
Special and intensive study of a single problem in medieval Spanish literature. May be repeated to a maximum of six credits. Prereq: SPI 601-602 or equivalent.

**SPI 775 SEMINAR IN MODERN SPANISH LITERATURE.** (3)
Special and intensive study of a specific problem or area in modern Spanish literature.

**SPI 776 SEMINAR IN SPANISH AMERICAN LITERATURE.** (3)
Special and intensive study of particular areas of Spanish American literature. May be repeated to a maximum of six credits.

**SPI 782 SPECIAL STUDIES IN SPANISH.** (1-3)
Selected studies and investigations in the Spanish language and Hispanic literature, permitting the student to work in areas of special interest and providing opportunity for original endeavor. May be repeated to a maximum of six credits. Prereq: Graduate standing.

**ITALIAN**

**SPI 191 ELEMENTARY ITALIAN.** (3)
A study of the grammar and composition of Italian.

**SPI 192 ELEMENTARY ITALIAN.** (3)
A continuation of SPI 191. Prereq: SPI 191.

**SPI 263 MASTERPIECES OF ITALIAN LITERATURE IN TRANSLATION.** (3)
A study of representative Italian writers and their works in a European context, using anthologies and complete texts where necessary.

**SPI 291 INTERMEDIATE ITALIAN.** (3)
Review of grammatical principles and readings of selected Italian works. Prereq: SPI 192.

**SPI 292 INTERMEDIATE ITALIAN.** (3)
A continuation of SPI 291. Prereq: SPI 291.

**SPI 295 ITALIAN CONVERSATION AND COMPOSITION.** (3)
Italian conversation and composition. Prereq: SPI 292 or equivalent.

**SPI 296 ITALIAN CIVILIZATION.** (3)
A study of Italian civilization, with emphasis on historical and cultural developments. Prereq: SPI 292 or equivalent.

**SPI 395 INDEPENDENT STUDIES IN ITALIAN.** (3)
Directed study in Italian literature, culture, and linguistics. May be repeated once. Prereq: 3.0 standing in the department and consent of instructor.

**SPI 417 ADVANCED ITALIAN LANGUAGE.** (3)
A course designed to practice language skills at an advanced level. Both oral and written presentations are required. Readings of contemporary Italian prose will be selected to illustrate grammatical and stylistic concerns and to stimulate discussion. Prereq: SPI 295 or SPI 296.

**SPI 443G SURVEY OF ITALIAN LITERATURE I.** (3)
A survey of Italian literature from its beginnings to the 17th century. Prereq: SPI 292.

**SPI 444G SURVEY OF ITALIAN LITERATURE II.** (3)
A survey of Italian literature from the 17th century to the present. Prereq: SPI 292.

**SPI 563 STUDIES IN DANTE.** (3)
Either the *Vita Nuova* and the *Divina Commedia*, *Inferno* or the *Divina Commedia*, *Purgatorio* and *Paradiso*. Prereq: SPI 443G.

**SPI 566 LITERATURE OF THE ITALIAN RENAISSANCE.** (3)
A study of the major literary trends and figures of the Italian Renaissance, from the literary and humanistic successors of Petrarch and Boccaccio to the writers of the Cinquecento. Prereq: SPI 543 or 544 or consent of instructor.

**SPI 569 TOPICS IN ITALIAN LANGUAGE, LITERATURE, OR CULTURE (Subtitle required).** (3)
Intensive study of an author, genre, period or movement of Italian literature or an aspect of Italian language or culture. May be repeated once under a different subtitle. Prereq: Variable; given when topic identified.

**SPI 593 MODERN ITALIAN LITERATURE IN TRANSLATION.** (3)
A study of the major trends and figures of 19th and 20th century Italian literature.

## ST Social Theory

**ST 500 INTRODUCTION TO SOCIAL THEORY.** (3)
Multidisciplinary introduction to social theory for advanced undergraduate and graduate students. Overall goal is to substantiate the idea that social theory comprises a set of ontological and epistemological issues about human coexistence which are nondisciplinary-specific. The course will (1) examine what different social fields take as their central theoretical issues and concerns, and (2) conduct multidisciplinary explorations of key problem areas in contemporary social thought such as the nature of objectivity, the construction of gender, the role of space and time in social life, and modernity and postmodernity. Prereq: Either a prior theory course in any social discipline or a prior course in such a discipline that discussed theoretical issues. Exceptions will be permitted only after consultation with the instructor.

**ST 600 MULTIDISCIPLINARY PERSPECTIVES IN SOCIAL THEORY (Subtitle required).** (3)
An advanced multidisciplinary seminar in social theory for graduate students taught by a team of faculty members. Topics change from year to year; examples include: individual and society, the social construction of gender, modernity and postmodernity, space and time in social life, objectivity and its other, etc. Focus is on the cross-disciplinary investigation of such issues in the social sciences and humanities. May be repeated to a maximum of nine credits under different subtitles. Prereq: ST 500 or permission of instructors.

**ST 610 *disCLOSURE* EDITORIAL COLLECTIVE.** (1)
Course provides editorial experience in the production of *disClosure*, a multidisciplinary social theory journal operated by students. Activities include: soliciting manuscripts, overseeing the external review process, communicating with authors, accepting and rejecting manuscripts, producing and distributing a single issue. May be repeated to a maximum of three credits. Lecture, two hours per week. Prereq: ST 500 or permission of instructor.

## STA Statistics

**STA 200 STATISTICS: A FORCE IN HUMAN JUDGMENT.** (3)
This course is concerned with the interaction of the science and art of statistics with our everyday lives emphasizing examples from the social and behavioral sciences. The student will not be required to learn mathematical formulas. Topics include the nature of statistics, uses and misuses of statistics, the scope and limitations of statistics, criteria by which published statistics may be judged, interpretation of probability and the art of decision making. Prereq: Completion of the mathematics basic skills requirement.

**STA 281 PROBABILITY AND STATISTICS USING INTERACTIVE COMPUTER TECHNIQUES.** (3)
The role of chance in experimental outcomes. Simple discrete and continuous probability distributions; combinatorics; moments and expectations; normal and binomial distributions; computer simulation and simple Monte Carlo methods. Descriptive statistics, charts, and graphs, and elements of statistical inference using interactive statistical packages (e.g., SCSS and/or MINITAB). Prereq: CS 150, CS 102, or CS 221; Coreq: MA 114, MA 132, or MA 118.

**STA 291 STATISTICAL METHOD.** (3)
Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency, and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prereq: MA 113, MA 123, or MA 131 or equivalent.

**STA 292 DESCRIPTIVE STATISTICS.** (1)
Graphical and tabular description of data; measures of central tendency and variation, scattergrams, correlation and best-fitting lines; index numbers. Prereq: MA 113, MA 123, or MA 131, or consent of instructor.

**STA 293 PROBABILITY.** (1)
Experiments and sample spaces; elementary and conditional probability; counting principles; random variables; distribution and expectation; normal and binomial distributions. Prereq: STA 292.

**STA 294 SAMPLING AND INFERENCE.** (1)
Sampling; sampling behavior of X and $S^2$; confidence intervals and tests of hypotheses about the mean and variance of a normal population: the $X^2$ and t- distributions. Prereq: STA 292 and 293.

**STA 320 INTRODUCTORY PROBABILITY.** (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 213 or equivalent. (Same as MA 320.)

**STA 321 BASIC STATISTICAL THEORY I.** (3)
Simple random sampling; point and interval estimation; hypothesis testing. Prereq: STA/MA 320.

**STA 381 INTRODUCTION TO ENGINEERING STATISTICS.** (3)
Probability; population and sample distributions; sampling; hypothesis testing; regression on one variable; quality control. Prereq: MA 213.

**STA 417G PRINCIPLES OF OPERATIONS RESEARCH II.** (3)
A continuation of MA 416G with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: CS/MA 416G and MA/STA 320, or consent of instructor. (Same as MA 417G.)

**STA 422G BASIC STATISTICAL THEORY II.** (3)
Theory of least squares; regression; analysis of variance and covariance; experimental design models; factorial experiments; variance component models. Prereq: STA 321.

**STA 424G BASIC PROBABILITY AND DISTRIBUTION THEORY.** (3)
Basic set theory and probability; random variables; discrete and continuous probability distributions; expected values, moments and moment-generating functions; distributions of functions of random variables; limiting distributions. Prereq: MA 114.

**STA 503 INTRODUCTION TO STATISTICAL METHODS.** (4)
Summary statistics, graphical methods, point and interval estimation, hypothesis testing, experimental design, simple and multiple regression, covariance and ANOVA as a special case of regression, categorical data analysis. Lecture, three hours; laboratory, two hours per week. Prereq: MA 322.

**STA 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS.** (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as MA/OR 515.)

**STA 524 PROBABILITY.** (3)
Sample space, random variables, distribution functions, conditional probability and independence, expectation, combinatorial analysis, generating functions, convergence of random variables, characteristic functions, laws of large numbers, central limit theorem and its applications. Prereq: MA 432G or 471G or consent of instructor. (Same as OR 524.)

**STA 525 INTRODUCTORY STATISTICAL INFERENCE.** (3)
Simple random sampling, statistics and their sampling distributions, sampling distributions for normal populations; concepts of loss and risk functions; Bayes and minimax inference procedures; point and interval estimation; hypothesis testing; introduction to nonparametric tests; regression and correlation. Prereq: STA 320 or STA 524 or STA 424G. (Same as OR 525.)

**STA 531 THEORY OF PROBABILITY.** (3)
Probability, spaces, conditional probability, law of total probability, Bayes Theorem, independence, random variables and their distributions, multivariate distributions, transformations, moment generating functions, Chebyshev's inequality, modes of convergence, Slutsky's Theorem, Borel-Cantelli, Law of large numbers, Central Theorem. Must be taken concurrently with STA 532. Prereq: MA 471G.

**STA 532 THEORY OF STATISTICAL INFERENCE I.** (3)
Sampling distributions, sufficiency, exponential families, likelihood and information, Consistency, efficiency, point and interval estimation, Neyman-Pearson Lemma, Likelihood ratio. Must be taken concurrently with STA 531. Prereq: MA 471G.

**STA 570 BASIC STATISTICAL ANALYSIS.** (4)
Primarily in biological, behavioral and social sciences. Introduction to methods of analyzing data from experiments and surveys; the role of statistics in research, statistical concepts and models; probability and distribution functions; estimation; hypothesis testing; regression and correlation; analysis of single and multiple classification models; analysis of categorical data. Lecture, three hours; laboratory, two hours. Prereq: MA 109 or equivalent. For graduate students; undergraduates must have consent of instructor.

**STA 600 COMMUNICATING IN STATISTICS.** (0)
Pedagogical skills for teaching assistants in undergraduate statistics courses and effective communication skills for professional statisticians. Topics include: basic teaching techniques, use of writing assignments to increase understanding of statistical concepts, writing and grading effective exams, and recording and analyzing grades with the aid of software. Videotaped sessions will be conducted and critiqued. May be repeated a maximum of three times. Prereq: STAT major.

**STA 601 THEORY OF STATISTICAL INFERENCE II.** (3)
Elements of decision theory; properties of estimators; point and interval estimation; hypothesis-testing; sequential testing; inference from categorical data; linear regression as conditional expectation; multivariate normal distribution. Prereq: STA 531.

**STA 603 INTRODUCTION TO LINEAR MODELS AND EXPERIMENTAL DESIGN.** (4)
Review of topics from matrix and vector algebra; multivariate normal distribution and its properties; distribution of quadratic forms. The noncentral $\chi^2$, F and T distributions; the general linear model and related inference; elementary computational methods; applications of the theory-experimental design and covariance analysis; a. One-Way Layout, CRD, b. Two-Way Layout, RCB, c. Latin Squares -- (1) Crossover designs, (2) Reversal, Double-reversal designs, (3) Other related designs, d. Factorials. Prereq: STA 503, STA 531; coreq: STA 601.

**STA 612 SEQUENTIAL ANALYSIS.** (3)
Survey and application of sequential sampling. Sufficiency and estimation. Two Stage sampling. The SPRT and its properties, both exact and approximate. Truncated and grouped SPRT's. Decision Theoretic approach. Sequential Estimation. Fixed width confidence intervals. Composite hypotheses and nuisance parameters. Generalized SPRT's. K hypothesis problems. Optimal Stopping. Prereq: STA 601.

**STA 616 DESIGN AND ANALYSIS OF SAMPLE SURVEYS.** (3)
Sampling from finite populations; estimation of sample size; stratification; ratio and regression estimators; systematic sampling; cluster sampling; multistage sampling (selection of sampling units with probability proportional to size); double sampling; response errors. Prereq: STA 531 or consent of instructor.

**STA 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH.** (3)
In this course the student is exposed to the art of applying the tools of operations research to "real world" problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as BA/EE/OR 619 and MA 613.)

**STA 621 NONPARAMETRIC INFERENCE.** (3)
Estimation and testing when the functional form of the population distribution is unknown; rank and sign tests; tests based on permutations of observations; power of nonparametric tests; optimum nonparametric tests and estimators. Prereq: STA 601.

**STA 624 APPLIED STOCHASTIC PROCESSES.** (3)
Definition and classification of stochastic processes, renewal theory and applications, Markov chains, continuous time Markov chains, queueing theory, epidemic processes, Gaussian processes. Prereq: STA 524 or consent of instructor. (Same as OR 624.)

**STA 626 TIME SERIES ANALYSIS.** (3)
Time series and stochastic processes, auto-correlation functions and spectral properties of stationary processes; linear models for stationary processes, moving average, auto-regressive and mixed autoregressive-moving average processes; linear nonstationary models, minimum mean square error forecasts and their properties; model identification, estimation and diagnostic checking. Prereq: STA 422G or equivalent. (Same as ECO 626.)

**STA 635 SURVIVABILITY AND LIFE TESTING.** (3)
Life Table Analysis. Estimation of survival rates with censored data. Competing Risk Theory. Parameter estimation for commonly encountered reliability distribution with complete censored and truncated data. Maximum likelihood and order statistics techniques. Survivability growth models, comparison of survival distribution, and sample size determination in clinical trials. Extreme value theory. Prereq: STA 525 or STA 601.

**STA 641 DESIGN AND ANALYSIS FOR VARIANCE COMPONENT MODELS.** (3)
Expected values, variances and covariances; balanced and nonbalanced designs; comparison of estimators; reduction of product variability; compositing; sequential designs; Bayesian estimation; confidence limits; negative estimates; finite populations. Prereq: STA 603.

**STA 643 ADVANCED EXPERIMENTAL DESIGN.** (3)
Advanced topics in analyses of incomplete block designs; confounding and change-over designs; data collected at several places and times; principles of design construction. Prereq: STA 603.

**STA 644 ADVANCED LINEAR AND NONLINEAR MODELS.** (3)
Review of the general linear model. Regression methodology using Ridge, Bayes, and Stein estimaters. The use of PRESS, $C_p$, and $R^2$ statistics as selection criteria. Modern computational methods. Nonlinear models and their methodology. Robust Regression. Prereq: STA 603.

**STA 661 MULTIVARIATE ANALYSIS I.** (3)
Characterization and properties of the multivariate normal distribution, random samples from this distribution; multivariate analysis of variance, related distribution theory; factor analysis. Prereq: STA 603.

**STA 665 ANALYSIS OF CATEGORICAL DATA.** (3)
Multinomial and product-multinomial models; large-sample theory of estimation and testing, Pearson chi-square and modified chi-square statistics, Pearson-Fisher Theorem, Wald Statistics and generalized least squares technique; applications to problems of symmetry, association and hypotheses of no interaction in multi-dimensional contingency tables. Prereq: STA 603.

**STA 671 REGRESSION AND CORRELATION.** (2)
Simple linear regression, elementary matrix algebra and its application to simple linear regression; general linear model, multiple regression, analysis of variance tables, testing of subhypotheses, nonlinear regression, step-wise regression; partial and multiple correlation. Emphasis upon use of computer library routines; other special topics according to the interests of the class. Lecture, three hours per week; laboratory, two hours per week for seven and one half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

**STA 672 DESIGN AND ANALYSIS OF EXPERIMENTS.** (2)
Review of one-way analysis of variance; planned and unplanned individual comparisons, including contrasts and orthogonal polynomials; factorial experiments; completely randomized, randomized block, Latin square, and split-plot designs: relative efficiency, expected mean squares; multiple regression analysis for balanced and unbalanced experiments, analysis of covariance. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 671.

**STA 673 DISTRIBUTION-FREE STATISTICAL INFERENCE AND ANALYSIS OF CATEGORICAL DATA.** (2)
Inference for population quantiles, sign tests, Wilcoxon tests, Kruskal-Wallis and Friedman tests, Kendall and Spearman rank correlation. Goodness-of-fit tests for completely and partially specified distributions, rxc contingency tables, McNemar and Cochran's Q tests for matched proportions; three dimensional tables and tests of partial and multiple associations. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

**STA 675 SURVEY SAMPLING.** (2)
Simple random sampling and stratified random sampling, ratio and regression estimators, cluster sampling, systemic sampling, and multi-stage sampling. Specific problems associated with running a survey: non-response, call-backs, questionnaire construction, mail questionnaires, and area sampling. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

**STA 676 QUANTITATIVE INHERITANCE IN PLANT POPULATIONS.** (3)
After a brief review of population genetics theory, the course is divided into two sections which cover methods of estimating genetic variances and selection methods in population improvement. The course will focus on handling and interpretation of actual data sets through data analysis and discussion of current literature. Prereq: STA 570, STA 671, STA 672, and ASC 662. (Same as AGR 676.)

**STA 677 APPLIED MULTIVARIATE METHODS.** (3)
Survey of multivariate statistical techniques. The multivariate normal distribution; the general linear model; general procedures for parameter estimation and hypothesis testing in the multivariate case; Hotelling's $T^2$, multivariate analysis of variance and covariance; structural models for the covariance matrix; utilization of existing computer programs. Prereq: STA 671 and 672, and a knowledge of linear algebra equivalent to MA 262.

**STA 679 DESIGN AND ANALYSIS OF EXPERIMENTS II.** (3)
A continuation of STA 672. Multiplicative models in two-factor experiments. Partial factorials. Extensions and modifications of split plots and Latin squares. Confounding in factorial experiments. Response surface methods. Estimation of variance components. One restrictional and two restrictional lattice and incomplete block designs. Combining analyses of similar experiments. Prereq: STA 671 and 672 or equivalent.

**STA 690 SEMINAR IN STATISTICS.** (1)
May be repeated to a maximum of three credits.

**STA 691 SPECIAL TOPICS IN THE PLANNING AND ANALYSIS OF EXPERIMENTS (Subtitle required).** (1-3)
Place of statistics in experimentation; topics in experimental design; response surfaces; departures from usual assumptions in analysis of variance; other selected topics. May be repeated to a maximum of nine credits. Prereq: STA 603 or consent of instructor.

**STA 692 STATISTICAL CONSULTING.** (3)
Basic principles of statistical consulting including how to manage a consulting session, how to formulate and solve problems and how to express results both orally and in writing. Students will be expected to analyze data from a current consulting project. Lecture, two hours; laboratory, two hours per week. Coreq: STA 643 or 644 or consent of instructor.

**STA 695 SPECIAL TOPICS IN STATISTICAL THEORY (Subtitle required).** (1-3)
To be selected by staff. May be repeated to a maximum of nine credits. Prereq: STA 601.

**STA 701 ADVANCED STATISTICAL INFERENCE I.** (3)
Basic concepts of decision theory, sufficiency and completeness; completeness of multiparametric exponential family; unbiasedness and invariance of decision rules; Bayes, minimax and invariant estimators; testing of hypotheses and optimality properties. Prereq: MA 571 and STA 601.

**STA 702 ADVANCED STATISTICAL INFERENCE II.** (3)
UMP and UMP unbiased tests for multiparametric exponential families; locally best tests; invariance and permutation tests, UMP invariant tests for linear hypotheses; asymptotic aspects of classical statistics, ML estimation and concepts of efficiency; sequential probability ratio test; confidence set, UMA unbiased and invariance confidence sets. Prereq: STA 701.

**STA 703 ADVANCED PROBABILITY.** (3)
Probability spaces, extension theorem, random variables; independence, conditional probability, conditional expectation; laws of large numbers, law of the iterated logarithm; convergence in distribution; characteristic functions; central limit theorems; martingales. Prereq: MA 571 and STA 524 or consent of instructor.

**STA 704 ADVANCED PROBABILITY—STOCHASTIC PROCESSES.** (3)
Random functions; jump Markov processes; processes with independent increments; stationary stochastic processes; diffusion processes; limit theorems; applications of stochastic processes. Prereq: STA 703.

**#STA 715 READINGS IN STATISTICS AND PROBABILITY (Subtitle required).** (1-6)
Supervised reading and discussion at the graduate level, of a selected bibliography of the essential literature of various special topics. May be repeated to a maximum of nine credits. Coreq: STA 702 or STA 704, and consent of instructor.

**STA 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**STA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**STA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**STA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

## SW Social Work

**SW 124 INTRODUCTION TO SOCIAL SERVICES.** (3)
Introduction to social welfare concepts and philosophies. Examination of the profession of social work and its philosophy and value commitments within social welfare. Public and private service delivery systems will be studied. Required of social work majors and recommended it be taken the first year. Two class hours and two laboratory hours per week.

**SW 222 DEVELOPMENT OF SOCIAL WELFARE.** (3)
Study of the cultural traditions, value orientations, and political and economic forces which have contributed to the emergence of present social welfare policies and systems in the United States. Required of social work majors and open to all others.

***SW 300 SOCIAL WORK PRACTICE I. (4)**
An introduction to social work practice theory, a study of the skills in professional practice of social work, and an examination of the functions of the social worker in the direct delivery of social services. Class includes four hours per week of laboratory in health or welfare settings, and three lecture hours. Prereq: SW 124. Open only to social work majors.

**SW 320 GLOBAL POVERTY: RESPONSES ACROSS CULTURES. (3)**
An examination of poverty in various non-Western cultures. The course will cover the nature, scope, and distribution of poverty, definitions of poverty, common characteristics of the poor, as well as cultural traditions and folkways which contribute to the problem. Social welfare responses and humanitarian efforts which address the problem are examined.

**SW 322 SOCIAL WORK AND SOCIAL WELFARE. (4)**
Designed for transfer students of junior rank. Study of social welfare development, social work philosophy and value commitment and with an examination of social service agencies and programs. Lecture, three hours; laboratory, two hours; options of agency visitation, group experiences, social service. Not open to those having SW 124 and 222. Prereq: For majors only.

**SW 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. (3)**
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/FAM/SOC 354.)

**SW 395 INDEPENDENT WORK. (1-4)**
Organized study research and/or tutorial work focused on special issues or problems. May be repeated to a maximum of four credits. Prereq: Major, standing of 3.0 overall GPA, or consent of dean, and consent of adviser and instructor.

***SW 400 SOCIAL WORK PRACTICE II. (4)**
A study of the integrated social work method and problem-solving skills. Examination of theories underlying social work practice. Discussion and analysis of readings, practice theory and particular strategies used in working with a variety of client systems and social problems. Prereq: SW 300. Open only to social work majors.

**SW 401 PRACTICE WITH CHILDREN AND FAMILIES. (3)**
The critical examination of social work practice with children and families with emphasis on social service interventions to strengthen family life. Prereq: SW 354.

***SW 420 PERSPECTIVES ON HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT. (3)**
This course will deal with the interrelatedness of the biological, social, cultural, environmental and psychological factors in human behavior and their relevance and application to social work practice. Prereq: A minimum of six hours of psychology and sociology. Open only to social work majors.

**SW 421 SOCIALIZATION AND RESOCIALIZATION GROUPS IN PRACTICE. (3)**
This course develops social work practice skills for conducting socialization and resocialization groups. Leadership activities include member selection, contracting, direct and indirect change techniques, and terminating. Application is made to a variety of settings and member characteristics. Prereq: Social work majors or consent of instructor.

***SW 430 SOCIAL WELFARE POLICY: THEORY AND IMPLEMENTATION. (3)**
The study and demonstration of different analytic models utilized in analysis of social welfare policy. The course also introduces content in the areas of organizational theory, management tools necessary to the understanding of implementation and evaluation of social welfare policy. Prereq: SW 222 or 322. Open only to social work majors.

***SW 444 EDUCATIONAL PRACTICUM I. (8)**
Introduction to social work practicum under faculty direction in a Teaching-Learning Center. Students will begin to apply knowledge from prerequisite courses in experiences which utilize social work practice skills with individuals, groups and social service organizations toward the goals of prevention, restoration, and enhancement of social functioning. Includes 24 hours per week of seminar and experiential learning. Prereq: SW 400 and SW 420. Open only to social work majors.

***SW 445 EDUCATIONAL PRACTICUM II. (8)**
Advanced social work practicum under faculty direction in a Teaching-Learning Center. The development of analytical and conceptual skills is emphasized in the application of theory to social work practice experience. Includes 24 hours per week of seminar and experiential learning. Prereq: SW 444. Open only to social work majors.

***SW 450 SOCIAL WORK RESEARCH. (3)**
An introductory study of the processes of research in building social work knowledge and developing effective social work practice. Prereq: A basic course in statistics. Open only to social work majors.

***SW 470 SENIOR SEMINAR. (3)**
An integrative professional seminar for senior majors in social work, usually taken in the last semester of course work. Social work issues of an educational, professional and practice nature are examined. Prereq: SW 445 or concurrent. Open only to social work majors.

**SW 477 FIELD EXPERIENCE FOR NONMAJORS. (3-6)**
Observation and participation in a wide variety of agency settings in the delivery of social services and problem solving. Lecture, 1 to 2 hours; laboratory, 9-18 hours per week. Prereq: Consent of instructor.

**SW 480 TOPICAL SEMINAR IN SOCIAL WORK. (2-4)**
Study of issues of current and special significance for social work practice. Issues selected in accordance with the needs and interest of students enrolled. May be repeated to a maximum of eight credits. Prereq: Open to students of the College of Social Work, or consent of instructor.

**SW 505 CHILD WELFARE SERVICES. (2-3)**
A study of community and national programs for child care and protection, including aid to dependent children and other social security services.

**SW 510 MENTAL HEALTH KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (2-3)**
An analysis of personality development, behavior patterns, and social structural factors with special reference to mental health, its service delivery system, and implications for practice in the social professions.

**†SW 512 MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS.**

**SW 513 INTEGRATED SERVICES FOR THE HANDICAPPED. (3)**
This course will focus on interdisciplinary teamwork practices and integrated services for individuals with handicapping conditions. A variety of interdisciplinary models of service delivery will be reviewed and experiential opportunities will be provided.

**SW 514 ALCOHOLISM AND PROBLEM DRINKING. (2-3)**
This course will examine traditional and emerging concepts of alcoholism and problem drinking with special attention to problems in definition. The contributions of recent research to our understanding of risk factors associated with various populations will be reviewed. Selected strategies for identification of and intervention into alcoholism and problem drinking will be discussed with particular attention to the unique problems and needs of racial minorities, youth, female, and other populations.

**#SW 515 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES I. (3)**
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as RC 515.)

**#SW 516 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES II. (3)**
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as RC 516.)

**SW 523 SOCIAL PERSPECTIVES ON RACISM AND ETHNIC PREJUDICES IN AMERICA. (2-3)**
The course is designed to provide the knowledge needed in understanding the dynamics of institutional racism from a broader perspective of five specific ethnic minorities in rural and urban America. Particular emphasis is placed upon planned community change and strategies pertinent to minority group communities. Students who wish to make a special, in-depth study of one of the specified content areas may take this course for one additional credit. Prereq: Consent of instructor.

**SW 560 SOCIAL WORK PRACTICE IN JUVENILE JUSTICE. (3)**
An examination of the history, organization and processes within the juvenile justice system, including the roles of the police, courts, and helping professionals. The impact on social work practice within the juvenile justice system is the major focus.

**SW 571 SOCIAL WORK AND THE LAW. (3)**
The course examines the lawyer's method and the legal system; the organization and ethics of the practicing bar; the impact of legal decision-making and lawyers on society in such selected situations as civil rights, juvenile and criminal justice and consumer debtor-creditor relationships; and working relationships between social workers and lawyers.

**SW 580 TOPICAL SEMINAR IN SOCIAL WORK. (2-4)**
Study of issues of current and special significance for social work practice. Issues selected in accordance with the needs and interests of students enrolled. May be repeated to a maximum of eight credits. Prereq: Open to the student of social work or consent of instructor.

***SW 600 SOCIAL WORK PRACTICE I. (4)**
Emphasizing an ecological and systems framework, this course utilizes the problem-solving method as the generalist's methodological approach for work with individuals and families. Special attention is paid to socializing students into the profession and to the social worker's obligations toward populations-at-risk. Students examine the NASW Code of Ethics, and ethical issues and dilemmas in social work practice. Prereq: Open only to students admitted to graduate school Social Work program.

***SW 601 SOCIAL WORK PRACTICE II. (2)**
This course builds on the knowledge base developed in SW 600. Ecological/systems framework provides a basis for practice with small groups, organizations, and communities. The impact of social and economic injustice is explored in depth. The effect of discrimination and oppression on populations-at-risk is discussed. Prereq: SW 600. Open only to students admitted to graduate school Social Work program.

**SW 603 SOCIAL WORK PRACTICE WITH CHILDREN AND YOUTH. (2)**
Study and analysis of developmental crises and problems of children and youth. Emphasis upon social work strategies of intervention for prevention, amelioration or resolution. Prereq: SW 600 or 601 or consent of instructor.

**SW 604 SOCIAL WORK PRACTICE WITH THE AGING. (2 or 3)**
This course will develop the framework of knowledge and skills necessary for effective social work practice in a variety of primary and host settings which deal with problems and issues confronting the aging citizen in contemporary society. Prereq: SW 600 or 601 or consent of instructor.

**SW 605 SOCIAL WORK PRACTICE IN HEALTH SERVICES. (2)**
Examination and analysis of the role of social work in health care delivery systems. Prereq: SW 600 or 601 or consent of instructor.

**SW 606 SEMINAR IN CRIMINAL JUSTICE PROCESSES. (2)**
Criminal justice processes are studied and evaluated emphasizing system aims, theories of criminality and societal reaction, the consequences and costs to offenders and to society of current policies to control and prevent crime. Traditional and innovative community and institutional programs for adult and juvenile offenders will be examined.

**SW 607 SOCIAL WORK PRACTICE WITH FAMILIES. (2)**
The presentation and critical examination of theory as it relates to the study of contemporary marriage and family life and professional social work practice skills intended to strengthen family life. Seminar, two hours. Prereq: SW 600 or 601 or consent of instructor.

**SW 609 CLINICAL SOCIAL WORK PRACTICE. (2)**
The presentation and critical examination of specific treatment modalities as they relate to individuals, families, marital couples, and groups. Specific emphasis will be placed on the application and evaluation of specific interventive techniques. Prereq: SW 600 or 601 or consent of instructor.

**SW 610 SOCIAL SERVICES IN BLACK COMMUNITIES. (3)**
Study of the diversity of relationships, structures, and processes in Black communities, of particular problems and human service needs of ethnic clients, and of implications for social service practice.

**SW 611 SOCIAL WORK PRACTICE IN MENTAL HEALTH. (2-3)**
Description, analysis, and examination of social work practice in the mental health service delivery system, with particular emphasis on social work interventions and roles.

**SW 612 SEMINAR ON SOCIAL WORK PRACTICE WITH WOMEN. (2-3)**
This seminar focuses on the special problems and practice strategies relevant to selected groups of women served by social work.

**SW 613 URBAN ECOLOGY AND AGING. (2 or 3)**
Effects of an urban environment upon the aging population, including community design, city planning, housing, transportation, relocation, and mobility. The impact of technological advances will be examined from the point of view of theory, current research, and the process of man-environmental relationships.

**SW 614 SOCIAL WORK PRACTICE WITH PEOPLE WITH AIDS. (2-3)**
A clinically-based study of the impact of AIDS upon individuals and families and the implications of the epidemic for social work practice. Emphasis will be on case analysis and examination of intervention strategies using experiential and case history techniques.

**SW 615 SOCIAL WORK IN WORK SETTINGS. (2-3)**
The course will provide an overview and introduction of social work practice and policy in work settings. Major issues and concerns will be identified and discussed. Guidelines for practice and skills required for practice will be examined. Direct services, policy, and primary prevention will be studied.

**SW 616 SOCIAL WORK PRACTICE IN SCHOOL SETTINGS. (2-3)**
A presentation and examination of school social work practice. Emphasis will be placed on roles, competencies and skills necessary for effective service provision. The differences in services to children in schools will be contrasted with those in primary social service settings. Focus will also be given to the impact of school legislation and regulations on the choice of populations served and programs provided.

**SW 617 FAMILY VIOLENCE: SOCIAL WORK INTERVENTIONS.** (2-3)
The development of a knowledge based framework for understanding, preventing and intervening in family violence as seen in child, spouse and elder abuse.

**SW 618 SOCIAL WORK PRACTICE WITH GAY AND LESBIAN PEOPLE.** (2-3)
This course is designed to expand the knowledge and understanding of students about the theory and dynamics of homophobia, heterosexism, and homonegativity. The effects of living with prejudice and discrimination among the gay and lesbian support systems available. Micro and macro social work intervention strategies will be studied as they relate to overall themes. Prereq: SW 600 or 601 or consent of instructor.

***SW 620 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT.** (4)
The general purpose of this foundation course is to develop in the student an understanding of the inter-relatedness of biological, social, cultural, environmental and psychological factors in human behavior and development. The knowledge base focuses upon the interaction among six units of analysis: the individual, the family, the small group, the organization, the community, the society and culture. The course draws upon social work knowledge as well as other areas, including child and adult development, personality, organization, family theory, small group theory, learning/behavioral theory, cognitive theory. The ecological perspective provides the unifying framework which integrates the concepts from each of these areas of study. Students are expected to develop their own personal theoretical models most appropriate to generalist practice and utilized to inform and guide intervention at all system levels. Prereq: Open only to students admitted to graduate Social Work program.

***SW 621 HUMAN GROWTH AND THE SOCIAL ENVIRONMENT II.** (2)
This course strengthens the necessary foundation for advanced courses in the biological, social, cultural, environmental, and psychological factors that influence human behavior. Prereq: Open only to students admitted to advanced standing in graduate social work program.

**SW 623 SOCIAL WORK PRACTICE WITH GROUPS.** (2-3)
This course critically analyzes approaches to group practice in social work emphasizing socialization and resocialization purposes and leader activities. Research and practice issues are examined. Prereq: SW 600 or 601 or consent of instructor.

**SW 624 PERSPECTIVES ON HUMAN SEXUALITY.** (3)
An examination and study of historical and current perspectives of sexuality as it relates to behavioral patterns, cultural attitudes, social policy and practice. Prereq: Knowledge of human behavior and personality theory highly recommended. (Same as FAM 624.)

**SW 625 PERSPECTIVES ON PSYCHOPATHOLOGY FOR SOCIAL WORKERS.** (2-3)
This course will focus upon an intensive examination of mental disorders as they relate to the individual and the family. Emphasis will be placed upon psychopathology in childhood, adolescence and adulthood. Models for understanding abnormal behavior will be introduced. Diagnostic techniques and interventive treatment strategies will be explored. Prereq: Knowledge of human behavior and personality theory highly recommended.

**SW 626 FORENSIC MENTAL HEALTH: EVALUATION AND TREATMENT.** (2-3)
An intensive analysis and study of forensic mental health including court evaluation, courtroom testimony and treatment of the victim. Students who wish to take this course for three credits will be expected to make an in-depth study of a specific content area. Lecture, two hours; laboratory (only for those taking the course for three hours), two hours per week. Prereq: Knowledge of behavior and personality theory is highly recommended.

**SW 627 SOCIAL WORK INTERVENTION IN FAMILY PROBLEMS.** (2-3)
The course involves identification of family problems encountered in social work practice and settings and presents the interventions commonly implemented in social work practice. The emphasis is on the social work approach to intervention with family problems.

***SW 630 SOCIAL WELFARE POLICY AND SERVICES.** (4)
This course emphasizes programs and policies, the historical roots of each, and the policy making process including models for policy analysis, and the components of formulation, enactment, implementation and impact. Course content reflects interdisciplinary efforts of the social, political, legal, economic and administrative processes which are vital to policy making at all levels. Prereq: Open only to students admitted to graduate Social Work program.

***SW 631 SOCIAL WELFARE POLICIES AND SERVICES II.** (2)
This course emphasizes that implementation of social policies with particular focus on social program administration, accountability, assessing need, and barriers to utilization. The power and politics in organizations are a constant thread of content. Prereq: Open only to students admitted to advanced standing in graduate social work program.

**SW 634 COMPARATIVE SOCIAL WELFARE POLICIES AND PROGRAMS.** (2-3)
A comparative study of income maintenance and health care delivery systems in selected foreign countries and the United States. Emphasis will be given to the problems in coverage, financing and administration.

**SW 636 MANAGEMENT SKILLS.** (3)
Practical application of relevant theories to the day-by-day operation of an organization, i.e., program objectives setting, climate setting, task identification and resource allocation, performance monitoring, decision making, etc.

**SW 637 TASK GROUPS IN AN ORGANIZATIONAL CONTEXT.** (2)
Theories and selected concepts about task groups are studied to understand the dynamics of task groups and/or to provide guidelines for changing group processes to increase effectiveness. Application of this knowledge is made to task groups such as councils, committees, teams, and boards. Class members will have the opportunity to develop skills appropriate for use as members and leaders of task groups.

***SW 640 GRADUATE EDUCATIONAL PRACTICUM I.** (5)
Introduction to social work practicum under faculty direction in a Teaching-Learning Center. Students will begin to apply and integrate knowledge from other courses in experiences which aid them in developing social work practice skills with emphasis on individuals, families, small groups, towards the goals of prevention, restoration and enhancement of social functioning. Experiential learning, 225 hours, and seminar. Prereq or concur: SW 600, SW 620 and SW 650.

***SW 641 GRADUATE EDUCATIONAL PRACTICUM II.** (5)
This course continues the process of introducing students to social work practicum under faculty direction in a Teaching-Learning Center. Students will continue to apply and integrate knowledge from other foundation courses in experiences which aid them developing social work practice skills with individuals, families, small groups. In addition, students will develop social work practice skills with organizations and communities toward the goals of prevention, restoration, and enhancement of social functioning. Experiential learning 225 hours and seminar. Prereq; SW 640 concurrent with SW 601 and SW 630.

**SW 642 PSYCHOLOGICAL ASPECTS OF HUMAN AGING.** (3)
Description and explanation of behavior, socialization and personality differentiation during the post-maturation developmental period: emotional aspects of aging; perception; intelligence; learning; motivation; normal and abnormal behavior; sexuality; life style. Prereq: SW 620 or equivalent, or consent of instructor.

**SW 643 BIOMEDICAL ASPECTS OF AGING.** (3)
A survey of the normal age-associated changes in biological function, the major disease entities found in the older population, and how the health care delivery system presently addresses these issues. Prereq: Graduate status or permission of the instructor. (Same as GRN 643.)

***SW 650 RESEARCH METHODS IN SOCIAL WORK.** (3)
Introduction to systematic approaches to scientific thinking necessary for building knowledge and evaluating one's own practice. Includes ethical use of scientific inquiry, critical appreciation of quantitative and qualitative methodologies, and use of research for program evaluation. Prereq: Open only to students admitted to the graduate Social Work program.

**SW 651 EVALUATIVE RESEARCH IN SOCIAL WORK.** (2)
Study of qualitative and quantitative methods of evaluative research, including designs for the systematic evaluation of student's own practice and evaluation of social work interventions, welfare programs and service delivery systems. Prereq: SW 650 or equivalent, advanced standing in the M.S.W. program or consent of instructor.

**SW 652 PUBLIC POLICY AND AGING.** (2 or 3)
The content of this course will center around the federal/state policy-making and policy implementation process. Among the areas to be considered are the origins of policy, interaction among policy-making bodies, the legal right and access to policy influence, political attitudes and behavior, the impact of the legislative system on the aging population, resource allocation, social insurance, the Older Americans Act, and political advocacy for and by older people and groups. Prereq: SW 630 or equivalent or consent of instructor.

**SW 662 INCOME SECURITY AND AGING.** (2 or 3)
Focus upon the economic condition of the older population: employment and occupational change; retirement, re-engagement; analysis of income and aging poverty; social security and pension plans; issues in income security. Prereq: SW 630 or equivalent or consent of instructor.

**SW 680 SPECIAL PROBLEMS IN SOCIAL WORK PRACTICE.** (2-6)
Current issues that have special significance for social work practice. Selected problems in accordance with the needs and interests of the students registered for the course. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**#SW 700 ADVANCED GENERALIST SOCIAL WORK PRACTICE I.** (4)
Students learn multidimensional and in-depth approaches for work with individuals, couples, families, and group systems using the advanced generalist model of practice within a systems framework. Leadership roles are emphasized, and complex ethical and legal issues analyzed. Careful consideration of diversity issues and at-risk populations is included. Prereq: SW 601 or advanced standing. Open only to students admitted to graduate Social Work program.

***SW 701 ADVANCED PRACTICE THEORY.** (2)
Study and analysis of the application of the problem-solving processes to leadership roles and responsibilities in social work practice. Prereq: SW 600, 601, 640; concur: SW 740. Open only to students admitted to graduate social work program.

**SW 711 ADVANCED LEADERSHIP ROLES IN SOCIAL WORK.** (3)
Advanced study and analysis of leadership roles in social work practice with emphasis upon administration and supervision. Some attention is given to consultation, staff development and teaching, and review of theories of adult learning. Prereq: SW 701 or consent of instructor.

**#SW 720 SOCIAL WORK PERSPECTIVES ON HUMAN AND CULTURAL DIVERSITY.** (2)
This second required course in the human behavior and social environment sequence builds upon the foundation course. The focus of this course is upon the effects of discrimination and oppression experienced by diverse population groups with special attention to the effects of racism, sexism, ageism, classism and geography upon vulnerable groups; and upon institutionalized societal and cultural themes in diversity; with implications for social work practice. Prereq: SW 620 or advanced standing in the MSW program.

**SW 721 ORGANIZATION AND MANAGEMENT METHODS FOR THE SOCIAL PROFESSIONS.** (2-3)
This course will consider the appropriate skills and methods for effectively organizing and managing agencies, institutions, and organizations which are elements of the various social service delivery systems. Included is the study of the management process as it applies to social service settings, an examination of specific management skills, and consideration of the impact of social service programs and delivery methods on program constituents and consumers. Prereq: SW 720 or taken concurrently with SW 720, or consent of instructor.

**#SW 730 ADVANCED SOCIAL WELFARE POLICY AND SERVICES I.** (2)
This course examines the intended and unintended consequences of public and organizational policies on the major social problems of poverty, racism and gender inequality, the deliberate efforts by policy makers to oppress, exploit and victimize people of color, women and children, current policies, especially those under intense review, to gain a better understanding of value conflicts. Prereq: SW 630 or advanced standing in MSW program.

**#SW 731 ADVANCED SOCIAL WELFARE POLICY AND SERVICES II.** (2)
This course examines the intended and unintended consequences of public and organizational policies on the major social problems involving the at-risk groups – the elderly, families and children, and those who are physically and mentally ill, current policies, especially those under intense review, to gain better understanding of value conflicts. Prereq: SW 730 and admission to graduate Social Work program.

***SW 740 ADVANCED GRADUATE EDUCATIONAL PRACTICUM I.** (5)
Application and integration of the advanced generalist practice model in advanced methods of intervention under faculty direction in a Teaching-Learning Center. Emphasis is on the development of leadership competencies and advanced generalist practice skills with individuals, families and small groups, organizations and communities. Experiential learning, 225 hours, and seminar. Prereq: SW 641 or advanced standing in the MSW program.

***SW 741 ADVANCED GRADUATE EDUCATIONAL PRACTICUM II.** (5)
This course provides an opportunity for students to continue to apply and integrate the advanced generalist practice model in advanced methods of intervention under faculty direction in a Teaching-Learning Center. Emphasis is on the continued development of leadership competencies and advanced generalist practice skills with individuals, families, small groups, organizations, and communities towards the goals of prevention, restoration and enhancement of social functioning. Experiential learning, 225 hours, and seminar. Prereq: SW 740.

***SW 745 ADVANCED SPECIALIZED EDUCATIONAL PRACTICUM.** (2-5)
Advanced field placement for second-year graduate students in a specialized area of social work practice in which students will carry major responsibility for independent practice or leadership. Experiential learning, 90-225 hours, and seminar. Prereq: SW 741. Open only to students admitted to graduate social work program.

**SW 750 RESEARCH IN PRACTICE. (2)**
Application of knowledge of research methods through designing and conducting research, under faculty supervision, on problems relevant to social work, including social work practice and program evaluation. Prereq: SW 651 or equivalent or consent of instructor.

**#SW 751 RESEARCH DESIGN AND IMPLEMENTATION IN SOCIAL WORK PRACTICE II. (1)**
Continuation and completion of research designed and started in SW 750. Prereq: SW 750.

**SW 770 SEMINAR ON SOCIAL ISSUES AND SOCIAL WORK PRACTICE. (2)**
Seminar for second-year students on social issues which are currently vital to legislation, public concern and social action for the purpose of effecting changes in institutions and service delivery systems. Prereq or concur: SW 740 or 741 or consent of instructor.

**SW 780 INDEPENDENT WORK. (2-6)**
Organized study, research and/or tutorial focused on special issues or problems. May be repeated to a maximum of six credits. Prereq: Major, graduate standing of 3.0 overall GPA, or consent of dean, and consent of adviser and instructor.

**SW 790 METHODS IN SOCIAL WORK RESEARCH. (2-6)**
Intensified study of the research process with emphasis on design, sampling process, data collection, and analysis. For students seeking more advanced and specific skill in social work research. Individual projects demonstrating the student's skill and competence in the research process may be used for a maximum of four credits beyond the basic two credits for the course work. Prereq: SW 650 or equivalent or consent of instructor.

## TA Theatre

**TA 101 INTRODUCTION TO THEATRE: PRINCIPLES AND PRACTICE. (3)**
The cultivation of judgment, perception and creative response to theatre, with emphasis on what and how theatre communicates through examination of both the processes and product of theatre.

**TA 126 ACTING ENSEMBLE. (3)**
A broad spectrum of skills will be explored in the creative process of acting ensemble. These skills include improvisation, movement disciplines (including theatre games, modern dance, and characterization), emotional and sensory awareness, and the process of integrating these into a clearly defined stage technique. Lecture, three hours; laboratory, two hours per week.

**TA 127 ACTING TECHNIQUES. (3)**
Movement exercises, sensory work, and theatre games are used to heighten awareness, release personal blocks, and discover the experience of being truthful with fellow actors. From there, students will move on to individual work to establish techniques they will use when working on a play. Students will explore physical and emotional awareness and develop a more creative use of their imaginations. Lecture, three hours; laboratory, two hour hours per week. Prereq: TA 126.

**TA 150 FUNDAMENTALS OF PRODUCTION. (3)**
A comprehensive study of the basic organizational structure, processes and techniques involved in theatre design, technology and management with particular reference to the UK Theatre.

**TA 190 PRODUCTION PRACTICUM. (1)**
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of two credits. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

**TA 191 PERFORMANCE PRACTICUM. (1)**
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of two credits. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

**TA 196 SUMMER THEATRE WORKSHOP. (3)**
Open to apprentice students in the Summer Theatre. Classes in the theory and application of acting, directing and production principles supplemented by assignments in the University's Summer Theatre. Admission by permission of staff. Lecture, three hours; laboratory, to be scheduled. Prereq: Acceptance as an apprentice student in the Summer Theatre.

**TA 225 VOCAL PRODUCTION FOR THE STAGE I. (3)**
The theory and practice of stage diction. Mastery of these vocal techniques will lead the student to the eradication of regional speech patterns, an appreciation of vocal craft and discipline and an awareness of the diversity of vocal expression.

**TA 226 METHODS IN ACTING. (3)**
A lecture/laboratory course concentrating on several components of the acting process: preliminary study in modern acting theories, Stanislavski to the present; textual analysis, character study and scene work; studio exercises aimed at refining rehearsal skills for the actor. Lecture, two hours; laboratory, four hours per week. Prereq: TA 126 or equivalent.

**TA 227 INTRODUCTION TO ACTING STYLES. (3)**
A continuation of TA 226, with continued emphasis on developing the actor's skills in analysis and rehearsal. This course will introduce the actor to a performance style other than realism. Lecture, two hours; laboratory, four hours per week. Prereq: TA 226 or equivalent.

**TA 260 STAGECRAFT. (3)**
Study of theory, principles and techniques of stage construction. Assignments in laboratory and backstage during rehearsals and performances. Lecture, two hours; laboratory, five hours. Prereq: TA 150 or consent of instructor.

**TA 264 MAKEUP FOR THE THEATRE. (3)**
Theory and practice in the principles, materials and application of makeup. Lecture, two hours; laboratory, two hours. Prereq: TA 150 or consent of instructor.

**TA 272 PRINCIPLES OF STAGE DRAFTING. (3)**
Principles of stage drafting: tools and symbols, dimensioning, cabinet drawings, lettering, floor plans, elevations, sections, details, isometrics, obliques, orthographic projections, metrics, and conversion and perspective. Two hours lecture; two hours laboratory. Prereq: TA 150 or consent of instructor.

**TA 283 AMERICAN THEATRE. (3)**
This course surveys American theatre history, giving particular emphasis to the late nineteenth and twentieth centuries. It examines both theatre practice and dramaturgy, and places them within an historical, social, and cultural context.

**TA 300 READINGS IN THEATRE (Subtitle required). (3)**
A program of supervised readings to provide undergraduate students with an in-depth comprehension of a selected area of theatre. May be repeated once under a different subtitle.

**TA 320 THEATRE MOVEMENT I. (3)**
The study and practice of principles, techniques, and exercises employed in one or more of the following areas of theatre movement: mime, mask, stage fencing, combat, clowning and circus techniques, and period movement. Laboratory, six hours per week. Prereq: Major and consent of instructor.

**TA 324 PERIOD MOVEMENT. (3)**
This course focuses on the study of movement from the medieval period through the beginning of the twentieth century. It examines the carriage of the body, historical settings, manners, etiquette and deportment of each period. Special attention is focused on the application of these techniques in period plays. Studio: five hours per week. Prereq: TA 320 or consent of instructor.

**TA 326 INTERMEDIATE ACTING. (3)**
Concentrated training in styles of language, movement and manners from various historical periods in theatre. Representative scenes will be chosen from among the following periods: Classical Greek, *Commedia dell'Arte*, Elizabethan, French Neo-Classic, Restoration, Eighteenth and Nineteenth Centuries. Laboratory, six hours per week. Prereq: B.F.A. candidate or consent of instructor.

**TA 327 ADVANCED ACTING. (3)**
A continuation of TA 326. Intensified study of acting styles and techniques from selective major acting periods stressing their relationships to the present. Intensive and individual coaching sessions. Laboratory, six hours per week. Prereq: TA 326, B.F.A. candidate or consent of instructor.

**TA 330 PRINCIPLES OF DIRECTING. (3)**
Discussion and practice of the director's basic techniques, methods and responsibilities. Lecture, two hours; laboratory, two hours. Prereq: Major or consent of instructor.

**TA 350-353 TOPICS IN THEATRE. (3)**
Reading, research, lecture and/or discussion in various areas of theatre history, technology and practice. May be repeated three times for a maximum of 12 hours when identified by different course subtitles. Prereq: Major or consent of instructor.

**TA 360 STAGECRAFT II. (3)**
Study of theory, principles and practices of advanced problems in stage construction. Three hours lecture per week. Four hours laboratory per week. Prereq: TA 260 or consent of instructor.

**TA 365 COSTUME DESIGN I. (3)**
A lecture-laboratory course to teach basic history, theory and practical construction of costume for the stage. Lecture, three hours; laboratory, five hours.

**TA 367 STAGE LIGHTING. (3)**
Theory, practice, and design of lighting for the theatre: historic background, electricity, instrumentation, control, and aesthetics. Three hours lecture per week; three hours laboratory per week. Prereq: TA 150 or consent of instructor.

**TA 374 SCENE DESIGN. (3)**
Process of evolving a scenic design through play analysis, research, metaphysical association and the assimilation of theatrical art forms against practical prescribed limitations. Practice in developing floor plans, elevations and simple sketching techniques. Lecture, two hours; laboratory, two hours. Prereq: TA 150 or consent of instructor.

**TA 380 HISTORY OF THE THEATRE I. (3)**
A study of the theatre from primitive times through the Elizabethan period. Theatre and stage architecture, scene design, costuming and acting styles are discussed and their relation to dramatic literature analyzed.

**TA 381 HISTORY OF THE THEATRE II. (3)**
A continuation of TA 380; a study of the theatre from the Jacobean period to the present.

**TA 383 SCRIPT ANALYSIS. (3)**
A course focusing upon dramatic literature as a composition for theatrical performance. Text interpretation will cover approaches used by practitioners of theatre art — directors, designers, and actors.

**TA 387 SEMINAR IN THEATRE. (3)**
Advanced reading and discussion in theatre theory and criticism. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: Major or consent of instructor.

**TA 390 PRODUCTION PRACTICUM. (1)**
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of four credits. At least two hours production related activities per week. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

**TA 391 PERFORMANCE PRACTICUM. (1)**
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of four credits. At least two hours performance related activities per week. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

**TA 395 INDEPENDENT WORK. (1-3)**
For undergraduate majors in theatre arts. Pursue independent work under the guidance of a staff member. Write a paper embodying the results of his research study and take an examination. May be repeated to a maximum of 12 credits. Prereq: Major, filing of prospectus at time of registration, and consent of chairperson.

**TA 396 SUMMER THEATRE. (3)**
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

**TA 397 SUMMER THEATRE. (3)**
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

**TA 398 SUMMER THEATRE. (3)**
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

**TA 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-15)**
A community-based or field-based experience in theatre, under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement.(Approval of Dean of Fine Arts required for more than six credits per semester.)

**TA 411 TEACHING OF THEATRE ARTS. (3)**
A course designed to introduce teachers and community theatre workers to the problems of staging under circumscribed conditions; minimum essentials of play production and the means of supplying these needs. Required of all certification students.

**TA 426 INTERMEDIATE ACTING STYLES. (3)**
An in-depth investigation of role analysis and character development culminating in material for audition and performance. Intensive, individual coaching sessions. Laboratory, six hours per week. Prereq: B.F.A. candidate or consent of instructor.

**TA 427 ADVANCED ACTING STYLES. (3)**
A continuation of TA 426. Intensified study and coaching sessions culminating in a public performance. Laboratory, six hours per week. Prereq: TA 426, B.F.A. candidate or consent of instructor.

**TA 430 THEATRE DIRECTING I. (3)**
Study of movement, interpretation of lines, creation of atmosphere, use of stage areas, use of levels, methods of achieving a climax, handling of groups, planning of mob scenes. Prereq: TA 330 or consent of instructor.

**TA 465 COSTUME DESIGN II. (3)**
An advanced course in the area of costume design with special attention paid to individual experimentation and development. Three class hours; laboratory, five hours per week. Prereq: TA 365.

**TA 495 SENIOR PROJECT. (3)**
An independent study project required of all senior majors. Designed to enable the student to demonstrate knowledge, skill and creativity in a particular area of theatre. Specific nature of project to be developed in collaboration with a faculty project adviser. Final product may be either a written or performed presentation. Prereq: Major/senior standing/filing of prospectus at time of registration.

**TA 516 PLAYWRITING. (3)**
A course designed for students interested in creative drama. The completion of at least one play is required. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**TA 524 DIALECTS FOR THE STAGE. (3)**
The theory and practice of stage dialects for the American actor as it pertains to interpreting the role. Prereq: TA 225 or consent of instructor.

**TA 525 VOCAL PRODUCTION FOR THE STAGE II.** (3)
A continuation of TA 225. Intensified work to develop, release and expand the dynamics of the voice in relationship to the actor's needs. Individual coaching in specific roles and dialects and remedial help for individual problems. Prereq: TA 225 or consent of instructor.

**TA 530 THEATRE DIRECTING II.** (3)
Analyses and direction of the characteristics of tragedy, comedy, melodrama, farce and their variants. Intensive application of techniques studied in TA 430. Prereq: TA 430 or consent of instructor.

**TA 590 PRODUCTION PRACTICUM.** (1)
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of two credits. Prereq: Consent of instructor and filing of prospectus.

**TA 591 PERFORMANCE PRACTICUM.** (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of two credits. Prereq: Consent of instructor and filing of prospectus.

**TA 596 SUMMER THEATRE.** (1-6)
Concentrated experiential education in the UK Summer Theatre program. May be repeated to a maximum of 12 credits. Prereq: Consent of Department by audition or interview.

**TA 600 READINGS IN THEATRE.** (3)
A program of supervised readings to provide graduate students with an in-depth comprehension of selective areas of theatre. May be repeated to a maximum of six credits. Prereq: Graduate standing.

**TA 625 ADVANCED STYLES OF ACTING.** (3)
The rehearsal and performance of scenes and class exercises in improvisation to develop creative imagination as a basis for acting. Lecture, three hours; laboratory, two hours. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**TA 660 STUDIES IN TECHNICAL THEATRE: PRODUCTION.** (3)
Problems in advanced sceno-graphic techniques including drafting for the theatre, period composition and design, translation of the design into actuality, planning and laying out the technical schedule. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

**TA 661 STUDIES IN TECHNICAL THEATRE: LIGHTING.** (3)
Investigation and critical evaluation of lighting practice and artistry in the contemporary theatre. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**TA 692 STUDIES IN DIRECTING.** (1-3)
Experience in directing a full-length production for the Department of Theatre including the submission of a prompt book and production log. May be repeated to a maximum of six credits. Prereq: Consent of chairperson.

**TA 770 SEMINAR IN THEATRE.** (3)
Intensive study in a designated area of theatre. May be repeated to a maximum of nine credits.

**TA 780 INDEPENDENT STUDY IN THEATRE.** (1-3)
Study and research on specific topics and problems according to the interests and needs of individual students. Normally offered as an independent work course. May be repeated to a maximum of six credits.

## TOX Toxicology

**TOX 508 RESEARCH METHODS IN TOXICOLOGY.** (1-3)
The course provides students with hands on experience in research methods used to solve toxicological problems. Students will be under the direction of a GCT faculty member, who will supervise the students efforts on a research project. The student will be trained not only in the hands on techniques but also in how to independently design and interpret research experiments. Students will prepare a final report on their research project, which will be designed to provide instruction and training in preparing publication-style research reports. This course is distinct from topical seminar or library survey courses, since such courses are not hands on in experimental methods. May be repeated to a maximum of six credits. Laboratory, two-six hours per week. Prereq: Status as upperclass undergraduate, post bac, or graduate student.

**TOX 509 CONTEMPORARY TOXICOLOGY.** (3)
Presentation of basic and advanced concepts to provide an integrated description of toxicology, its scope, the unique application of principles that characterize it as a science, and its professional practice. Emphases will include the influence of federal regulations on the practice of toxicology. Prereq: BCH 501 and PHA 522 or equivalents or consent of instructor.

**TOX 645 NEUROTOXICOLOGY.** (2)
Multidisciplinary discussions of the major sites and mechanisms of drug/chemical-induced nervous system toxicity. Presentations by faculty and graduate students. Prereq: BCH 501 and 502, PGY 502 and PHA 522 or equivalent and consent of instructor. (Same as PHR 645.)

**TOX 649 MOLECULAR PHARMACOLOGY.** (3)
The intent of this course is to describe the molecular aspects of a variety of physiological systems that are subject to pharmacological manipulation. Emphasis will be on the molecular genetics, biochemistry, and subcellular organization and biology of these systems, and on the pharmacological techniques used to study these systems. Genetic diseases associated with these systems will also be described. The course will focus on areas of research which represent the forefront of modern pharmacological investigation. Prereq: PHA 522, PGY 502, BCH 501, 502, or consent of instructor. (Same as PHR/PHA 649.)

**TOX 650 CELLULAR AND HISTOTOXICOLOGY.** (2)
A systematic review of morphological responses to body trauma with special reference to toxic agents. The course is planned to consist of formal presentations and of discussion sessions (primarily interpretation of microscopic preparations). Prereq: Consent of instructor. (Same as VS 650.)

**TOX 660 CLINICAL TOXICOLOGY AND DRUG MONITORING.** (3)
A lecture and demonstration course designed to acquaint the student with the two main areas of clinical toxicology. The first part of the course will cover the scope of the drug abuse problem in the U.S.A. and detail the emerging role of the clinical toxicologist in dealing with a wide variety of analytical and medicolegal problems associated with illicit drug detection. The second part of the course will cover the rapidly expanding area of clinical toxicology which deals with the monitoring of therapeutic drugs as they relate to the appropriate clinical management of patients. Prereq: BCH 501 and 502, PHA 521 and 522 or equivalent with consent of instructor. (Same as PAT 660.)

***TOX 663 DRUG METABOLISM AND DISPOSITION.** (2)
Drug metabolism and disposition. Lectures and discussion of the chemistry and biochemistry of drug biotransformation with emphasis on the mixed-function oxidase system. Prereq: BCH 401G or 501, 502 or consent of instructor. (Same as PHA 663.)

**TOX 670 CHEMICAL CARCINOGENESIS.** (3)
Lectures and discussion of the chemical and biochemical reactions of chemical carcinogens and their metabolites. Prereq: CHE 232; PHR 400; or BCH 501, 502. (Same as PHA 670.)

**TOX 680 ADVANCED TOXICOLOGY.** (5)
An intensive examination of the chemistry and action of substances which adversely affect living systems, and consideration of means of lessening their impact on man and the environment. Prereq: TOX 509 or consent of Director of Graduate Studies.

**TOX 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**TOX 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**TOX 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**TOX 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**TOX 770 TOXICOLOGY SEMINAR.** (0-1)
A specialized seminar focusing on current topics of toxicological significance. Registration each fall and spring semester required of all toxicology majors until residency requirements for the degree have been completed. May be repeated to a maximum of three times during a semester and for a maximum number of two credits during entire graduate course work.

**TOX 780 SPECIAL PROBLEMS IN TOXICOLOGY.** (2)
Exposure to and actual research experience in an area of toxicology other than that encountered by students in their thesis and dissertation research. May be repeated to a maximum of six credits. Prereq: Consent of graduate adviser.

**TOX 790 RESEARCH IN TOXICOLOGY.** (1-12)

## UK University Wide

**UK 100 UNIVERSITY COURSE (Title to be assigned).** (1-3)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Vice Chancellor for Academic Affairs. A particular title may be offered at most twice under the UK 100 number. Students may not repeat under the same title. Prereq: Will be set by instructor.

**UK 101 ACADEMIC ORIENTATION.** (1)
This course is designed to assist undergraduates in adjusting to the academic life of the University. Through lectures, discussions, exercises, and out-of-class assignments, freshmen students will gain a better understanding of the purpose and nature of a university education, will acquire skills for achieving academic success, will learn how to make effective use of the University's resources and will engage in small group interaction with peers and with University faculty. Offered on a pass/fail basis only. Lecture, two hours per week for seven weeks.

**UK 300 UNIVERSITY COURSE (Title to be assigned).** (1-3)
This course permits the offering of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Vice Chancellor for Academic Affairs. A particular title may be offered at most twice under the UK 300 number. Students may not repeat under the same title. Prereq: Will be set by instructor.

**UK 301 CROSS-CULTURAL STUDIES (Subtitle required).** (3)
A study of a non-Western or Third World culture (or cultures) through an examination of its cultural, artistic, social, political, economic or religious traditions. The particular culture(s) to be studied and the approach to be adopted will be determined by the instructor. Each course proposal must be approved by the Dean of Undergraduate Studies and students may not repeat the course under the same subtitle. May be repeated to a maximum of nine credits.

## VS Veterinary Science

**VS 350 INTRODUCTORY ANATOMY, PHYSIOLOGY, AND ANIMAL HYGIENE.** (3)
A study of anatomy and physiology as related to courses in livestock production, judging, nutrition, meats and diseases, and introduction to the basic mechanism of animal disease and the relationship of animal hygiene.

**VS 351 PRINCIPLES OF ANIMAL HYGIENE AND DISEASE CONTROL.** (3)
A study of animal sanitation and disease control management. The course will acquaint students with the more important infectious, toxic, metabolic and parasitic diseases of domestic animals and will emphasize preventive concepts.

***VS 395 SPECIAL PROBLEMS IN VETERINARY SCIENCE.** (1-4)
Prereq: VS 350, 351, and consent of instructor. May be repeated to a maximum of six credits.

**VS 650 CELLULAR AND HISTOTOXICOLOGY.** (2)
A systematic review of morphological responses to body trauma with special reference to toxic agents. The course is planned to consist of formal presentations and of discussion sessions (primarily interpretation of microscopic preparations). Prereq: Consent of instructor. (Same as TOX 650.)

**VS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**VS 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**VS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
Residence credit while completing research and writing thesis. Prereq: Completion of course requirements for the MS. May be repeated to a maximum of 12 hours.

**VS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**VS 770 VETERINARY SCIENCE SEMINAR.** (1)
Required of graduate students in veterinary science. May be repeated to a maximum of six credits. Prereq: Consent of staff.

**VS 781 CORRELATIVE PATHOLOGY.** (1-3)
Supervised experience in the use of clinical, gross and histopathological technics in the differential and definitive diagnosis of diseases. May be repeated to a maximum of nine credits. Prereq: Pathology in D.V.M. curriculum or equivalent and consent of staff.

**VS 785 ADVANCED VETERINARY PARASITOLOGY.** (3)
Experimental methodology and host-parasite relationships of the protozoan and helminth parasites of domestic animals. Prereq: Parasitology in D.V.M. curriculum or equivalent and approval of staff.

**VS 786 ADVANCED VETERINARY PATHOLOGY.** (3)
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

**VS 791 TECHNIQUES IN VETERINARY MICROBIOLOGY.** (1-9)
Independent research in veterinary microbiology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

**VS 792 TECHNIQUES IN GENERAL VETERINARY PATHOLOGY.** (1-9)
Independent research in veterinary pathology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

**†VS 793 TECHNIQUES IN VETERINARY PARASITOLOGY.**

## WS Women's Studies

**WS 200 INTRODUCTION TO WOMEN'S STUDIES IN THE SOCIAL SCIENCES.** (3)
An introduction to women's studies from a social science perspective, using a cross-cultural and interdisciplinary approach. Introduces students to social science explanations for sex-typed behavior, to social perceptions of women and men, and to the roles of women in social and cultural life.

**WS 201 INTRODUCTION TO WOMEN'S STUDIES IN THE ARTS AND HUMANITIES.** (3)
An introduction to women's history in work, family and creative production. This course presents a set of organizing ideas for examining issues and problems of women in contemporary society, and gives students opportunities for writing, interviewing and discussing issues of gender, class and race from an interdisciplinary point of view. It introduces students to the basic methods of humanistic inquiry in general and humanistic women's studies in particular.

**WS 300 TOPICS IN WOMEN'S STUDIES (Subtitle required).** (3)
Selected topics in women's studies with special attention to those of contemporary relevance. May be repeated to a maximum of nine credits under different subtitles. Prereq: WS 200 or WS 201 or permission of instructor.

**WS 399 INTERNSHIP IN WOMEN'S STUDIES.** (1-6)
Provides field experiences in women's studies through work in education, industry, government, or community organizations. Offered on a pass/fail basis only. Maximum six credit hours per placement to maximum of twelve credit hours total. (Three hours can be counted toward the undergraduate Women's Studies minor requirements.) Prereq: WS 200 or WS 201 and declared minor in Women's Studies and consent of director of Women's Studies and faculty supervisor and learning contract filed with Experiential Education and Women's Studies.

**WS 400 RESEARCH IN WOMEN'S STUDIES.** (3)
The purpose of this course is to provide students the opportunity to engage in independent faculty-directed library or field research focused upon significant issues and problems confronting women in contemporary society. Prereq: WS 200.

**WS 600 TOPICS IN WOMEN'S STUDIES (Subtitle required).** (3)
Selected topics of theoretical or substantive interest in women's studies with special attention to topics of contemporary relevance. May be repeated to a maximum of nine credits under a different subtitle. Prereq: Graduate standing or permission of instructor.

# COLLEGE OF LAW

**LAW 801 CONTRACTS/SALES I.** (3)
Formation of contracts; offer, acceptance, consideration. Statute of Frauds, parol evidence rule. Sale of goods under Article 2 of the Uniform Commercial Code.

**LAW 802 CONTRACTS/SALES II.** (3)
Continuation of Contracts/Sales I - Statute of Frauds, performance, express and implied conditions, repudiation, impossibility.

**LAW 804 LEGAL RESEARCH AND WRITING SKILLS.** (3)
Instruction in the use of research materials, in legal writing, in the fundamentals of legal analysis and in the solution of selected legal problems.

**LAW 805 TORTS I.** (3)
Intentional torts and defenses, negligence, causation, duties of occupants of land, contributing negligence, strict liability.

**LAW 806 TORTS II.** (2)
A continuation of Torts I - products liability, invasion of privacy, defamation, interference with advantageous relationships.

**LAW 807 PROPERTY I.** (3)
Rights in personal and real property, gifts, estates, uses and easements.

**LAW 808 PROPERTY II.** (3)
Leasehold estates, rights of tenant and landlord, land transfers, land contracts, covenants, recording acts.

***LAW 809 FEDERAL CRIMINAL LAW.** (2-3)
This course will cover federal white collar criminal issues, including RICO, mail and wire fraud, political corruption, bank secrecy laws, and false statement laws.

**LAW 810 CRIMINAL LAW.** (3)
Jurisdiction; the criminal act, complete and incomplete; criminal intent, actual and constructive; duress and mistake of fact, of law; justification; parties in crime; crimes against the person and crimes against property.

**LAW 811 CRIMINAL PROCEDURE I.** (3)
This course will cover search and seizure, the privilege against self-incrimination, confessions and identification procedures—in general, the constitutional cases arising out of the conflict between police practices and the Bill of Rights.

**LAW 812 CONTRACTS.** (4)
Formation of contracts, offer, acceptance, consideration. Statute of Frauds, parol evidence rule, contracts for benefit of third persons, assignments, performance of contracts, express and implied conditions, impossibility of performance, discharge and illegal contracts.

**LAW 814 CRIMINAL TRIAL PROCESS.** (3)
This course will cover in-depth the criminal trial process from the initial court appearance: grand jury proceedings, pretrial motions, discovery, trial, pleas, sentencing, appeals, double jeopardy and habeas corpus. Students who have taken LAW 813, Criminal Procedure II, may not take this course.

**LAW 815 CIVIL PROCEDURE I.** (3)
Introduction to the civil action; personal and in rem jurisdiction; service or process and notice; subject matter jurisdiction; venue; choice of law; pleading.

**LAW 817 CIVIL PROCEDURE II.** (2-3)
Joinder of claims and parties; discovery; summary judgment; right to jury trial; trials and posttrial motions; res judicata and collateral estoppel.

**LAW 818 REMEDIES.** (3)
Nature of damages; nature of specific relief; personal interests; contractual interests; property interests; specific relief and the government.

**LAW 819 THE FEDERAL COURTS AND THE FEDERAL SYSTEM.** (3)
The nature of the federal judicial function and its development, distribution of power among federal and state courts, Supreme Court review of state court decisions, the law applied in federal district courts, federal question and diversity jurisdiction, federal habeas corpus, removal jurisdiction and procedure.

**LAW 820 CONSTITUTIONAL LAW I.** (3)
Judicial interpretation of the Constitution; the federal system; powers of the national government; limitations on the exercise of state powers.

**LAW 821 LITIGATION SKILLS.** (3)
The skills of litigation, including trial advocacy, interviewing and counseling, negotiation and pleading. Lecture, one hour; laboratory, five hours. Prereq or concur: LAW 890.

**LAW 822 CONSTITUTIONAL LAW II.** (3)
Protection of individuals and organizations by the Bill of Rights, the fourteenth amendment, and other provisions of the Constitution.

**LAW 823 FIRST AMENDMENT LAW.** (3)
Survey of the doctrines of freedom of speech, press, association, and religion under the First Amendment to the United States Constitution.

**LAW 824 ALTERNATE DISPUTE RESOLUTION.** (3)
Methods of dispute resolution other than trial; statutory and judicial regulation; presenting a claim in different formats of ADR.

**LAW 825 THE NEGOTIATING PROCESS.** (2)
Analysis of the elements of bargaining power; exercises in the negotiating process in various contexts; basic techniques of negotiation; ethical norms of the lawyer-investigator. Lecture, one hour; laboratory, two hours per week.

**#LAW 826 LEGAL DRAFTING.** (2-3)
This course systematically explores drafting process and technique and provides drafting practice. Students complete drafting-related exercises which become the focus of class discussions. Students also complete major drafting projects. These may consist of a will, a contract, a piece of legislation or other common lawyer work product. Major drafting projects are the focus of class discussions and individual or small group meetings with the instructor.

**LAW 827 LEGAL MEDICINE.** (3)
Legal-medical issues, including medical negligence, regulation of health care providers, aiding and altering reproduction, and defining death.

**LAW 835 PROFESSIONAL RESPONSIBILITY.** (2-3)
An examination of the varying roles played by lawyers in society and the conflicting pressures created to each role. Special attention is paid to the Code of Professional Responsibility as a guide and control in the lawyer-client relationship. Also considered at length is the role of law in society and the place of the legal profession in society. Guest speakers are used to bring into focus employment options for lawyers and the viewpoints of varying types of practicing lawyers to the pervasive problems of the legal profession.

**LAW 837 PHILOSOPHY OF LAW.** (3)
Concept of law; relations between law and morals; nature of legal reasoning; analysis of legal concepts; justification of punishment. Pass/fail basis only for law students. (Same as PHI 537.)

***LAW 850 LEGAL ACCOUNTING.** (2-3)
This course is designed to introduce students to general bookkeeping and accounting principles. Class discussion will concentrate on the relevance of accounting judgments to legal issues rather than focusing on technical problems. Students will examine income statements, balance sheets, and other accounting documents. Emphasis will be placed on an understanding of accepted accounting principles (GAAP) and the abuses of GAAP. Students with undergraduate financial accounting can take this course only with permission of the professor.

**LAW 851 BUSINESS ASSOCIATIONS.** (4)
Legal introduction to business organization; emphasis on nature and structure under modern American business corporation law. Areas: partnership planning (formation, property rights, dissolution and liquidation rights); steps for corporate organizing (including legal consequences of defective incorporation); nature of corporate entity concept; corporate control and management (including problems of close corporation); fiduciary duties of directors and controlling shareholders under state law; nature and characteristics of shareholders' derivative suit. Prereq: Completion of first year of law study generally is expected.

**LAW 855 CORPORATION FINANCE LAW.** (3)
A study of selected problems in advanced corporation law, including corporate promotion and capitalization (with special emphasis on senior securities and their characteristics); corporate distributions (dividends); recapitalizations (elimination of accrued dividends); public regulation of security issues (Securities Act of 1933 and state Blue Sky laws).

**LAW 856 BUSINESS PLANNING.** (3)
This course involves the planning of business transactions and combines the applicable corporate, tax, and securities considerations of such transactions in a single course. Emphasis will be on some of the more important types of corporate transactions, such as the organization of a private corporation and a public corporation, conflicts between stockholders of a close corporation, and corporate combinations. Course is limited to third-year students who have had a background in corporations and income tax. Knowledge of securities regulation and corporate tax is desired.

**LAW 860 TAXATION I.** (3-4)
Problems in federal and state income taxation.

**LAW 861 TAXATION OF BUSINESS ENTERPRISES I.** (4)
Federal income taxation of transactions between partners and their partnership and shareholders and their corporation; organization of partnerships and corporations; taxation of distributions of operating profits, liquidations, and sales of interests. Prereq: LAW 860.

**LAW 863 TAXATION OF BUSINESS ENTERPRISES II.** (3)
Advanced problems of federal income taxation of corporations and partnerships; mergers and acquisitions; reorganizations, recapitalizations; affiliated corporations; consolidated returns. Prereq: LAW 860 and LAW 861.

**LAW 865 ESTATE AND GIFT TAXATION.** (3)
Donative transfers of property, including *inter vivos* transfers and wills; income, estate, and gift tax consequences of the various methods of disposition; administration of estates.

**#LAW 866 ESTATE PLANNING SKILLS.** (2-3)
This course offers practical experience in advanced estate planning; interviewing, counseling, planning and drafting wills, trusts and related documents. Prereq: LAW 865 and LAW 876.

**LAW 867 TAX PRACTICE AND PROCEDURE.** (3)
An advanced tax elective dealing with administrative practice before the IRS; court procedures governing judicial resolution of tax controversies; civil and criminal tax penalties; and the ethical standards governing tax practice. Prereq: LAW 860.

**LAW 870 MINERAL LAW.** (3)
An examination of legal problems connected with coal, oil, and gas. The course will cover: ownership and conveyances of mineral interests, the laws affecting mine development and operations, coal mine employment, sale and marketing of extracted materials, and legal issues affecting the use of minerals.

**LAW 872 LAND USE PLANNING.** (2-3)
A comprehensive survey of the basic legal devices to control the use of land, theories of land use planning, nuisance, private agreements, zoning and zoning procedure, the role of the federal government in land planning, exercise of eminent domain, and selected Kentucky problems, such as rural zoning and proposed New Towns for Appalachia.

**LAW 873 LAND TRANSFER LAW.** (3)
An elective course for second-year law students. A basic study of the body of land development law, including: land transfers, land sales contracts; deed covenants; recording acts; title insurance; contemporary landlord and tenant law; and public utility, subdivision and zoning regulations. The indicated problem areas are treated together to illuminate the lawyer's role in the land development process.

***LAW 874 BANKING LAW.** (2-3)
History of banking; overview of agencies which regulate bank activities; formation and regulation of bank holding companies; bank mergers and acquisitions; branch banking; antitrust considerations; trust operations conducted by banks; impact of securities legislation on bank loans and bank financing; the FDIC and its impact on a failing bank.

**LAW 875 SECURITIES REGULATION.** (3)
The law governing the issuance, distribution and trading of securities under the Securities Act of 1933 and the Securities Exchange Act of 1934; the obligation to register securities; public offerings by issuers; secondary distributions; and registration requirements growing out of mergers, definition of a "security" and the exemptions from registration requirements; insider trading prohibitions; antifraud provisions in tender offers, self tenders, proxy solicitations and the purchase and sale of securities.

**LAW 876 TRUSTS AND ESTATES.** (4)
An elective course for second-year law students. Examination of rules governing intestate distribution of property; formal requirements governing execution, alteration and revocation of wills; requisite elements of express trusts and requirements for their creation; special rules relating to charitable trusts and spendthrift trusts; rules concerning construction of wills and trusts and general rules governing administration of decedents' estates and trusts.

**LAW 877 FUTURE INTERESTS.** (2)
An advanced elective course for third-year law students treating in-depth future interests of ownership in property, including the kind of future interests, rules as to class gifts, the rule against perpetuities, and powers of appointment with emphasis on the lawyer's use of future interests in estate planning and the pitfalls relating thereto.

**LAW 879 COMMERCIAL LAW I.** (3)
A study of problems involved in the sale of goods as governed by the Uniform Commercial Code. Attention is given to statutory methodology.

**LAW 880 BASIC UNIFORM COMMERCIAL CODE.** (4)
A study of problems involved in secured transactions and the exchange of commercial paper as governed by the Uniform Commercial Code.

**LAW 881 PAYMENT SYSTEMS.** (2)
This course examines the law relating to various means of payment or insuring payment including checks, electronic funds transfers, and letters of credit. Bodies of law covered include Articles 4, 4A, and 5 of the Uniform Commercial Code, the Federal Electronic Fund Transfers Act, and federal regulations relating to check collections and the availability of funds. Successful completion of Basic Uniform Commercial Code is a prerequisite. Prereq: Basic Uniform Commercial Code.

**LAW 883 BUSINESS BANKRUPTCY.** (2)
A study of the issues relative to business bankruptcies, including defining the estate; claims against the estate; trustee's power to enhance the estate; preservation of the estate; priorities; and reorganization under Chapter Eleven.

**LAW 885 COMMERCIAL DEBTOR-CREDITOR RELATIONS.** (2-3)
Minimizing risk of loss through bankruptcy by business creditors and debtors; Uniform Commercial Code versus the federal Bankruptcy Act; nonbankruptcy creditors' and debtors' remedies in commercial context, including assignments and arrangements under state law; commercial bankruptcy; rehabilitation under Bankruptcy Act.

**LAW 887 INSURANCE.** (2-3)
Nature of contract, insurable interest, making the contract, concealment, representations, warranties, implied conditions of forfeiture, waiver and estoppel, rights under the contract, and construction of the policy.

**LAW 890 EVIDENCE.** (4)
Rules of admissibility, real, circumstantial, testimonial and documentary evidence, witnesses, hearsay rule and its exceptions, procedure of admissibility, law and fact, judge and jury, burden of proof and presumption, judicial notice, and parole evidence rule.

**LAW 898 ENVIRONMENTAL LAW.** (3)
The role of the legal system in regulating the interrelated subsystems within the physical environment, including water and air pollution, solid waste disposal, and strip mining. Emphasis on: constitutional limitations on the public's power to implement planning proposals; relationships between federal, state and local governments; structure of agencies regulating environmental quality; standards for administrative discretion; the openness of administrative hearing procedures; and the scope of judicial review of administrative decisions. Prereq: None directly, although completion of first-year law courses is expected for second- and third-year elective courses.

**LAW 900 LAW SPECIAL COURSE.** (2 or 3)
Interdisciplinary, topical or experimental courses to be approved by the faculty and Dean of the College of Law. A particular course may be offered no more than twice under the LAW 900 number.

**LAW 905 CONFLICT OF LAWS.** (3)
Nature of the subject, penal laws, procedure, judgments, domicile, capacity, form, particular subjects, litigation, family law, inheritance, foreign administrators.

**LAW 910 LABOR LAW.** (3)
History, organization, and structure of American labor unions; obligations and prerogatives of employers; questions of representation; privileges and obligations of unions; collective bargaining and dispute settlement.

**LAW 912 EMPLOYMENT LAW.** (3)
This course surveys and examines that multitude of important legal doctrines, statutes and rules that regulate those rights and responsibilities of employers and workers which are not controlled by collectively bargained agreements. The structures for administering the more important areas of such regulation are also studied. The subject matter of this course affects most dimensions of the manner in which over three quarters of our Gross National Income is distributed. Course coverage includes: the law of individual employment contracts, special employment relations such as civil service, the employer's right to various forms of work products, the employer's responsibility for job health and safety, protection of the worker's property, worker responsibility for wrong-doing, wage-hour laws, vacation benefits, bonuses, retirement benefits, health insurance benefits, and unemployment compensation.

**LAW 914 ADVANCED TORTS.** (2-3)
Advanced torts provides a detailed and sophisticated treatment of one or more areas of tort law. Potential topics include defamation and privacy; products liability; medical malpractice; commercial torts; toxic torts and mass tort litigation, emphasizing innovative alternative methods of resolving such litigation; and comparative law aspects of tort litigation with a focus on analyzing other compensation systems.

**LAW 915 FAMILY LAW.** (2-3)
Contracts to marry; the marriage status; annulment, divorce and separation; parent and child; infants and incompetent persons.

**LAW 920 ADMINISTRATIVE LAW.** (3)
Establishment of administrative tribunals, limits on discretion. Notice and hearing, orders, methods of judicial relief, scope of judicial review.

**LAW 925 INTERNATIONAL LAW.** (3)
Introduction to the legal process by which interests are adjusted and decisions reached on the international scene. Treaties, the law of international organizations, the "common law" of nations and national laws with significant international ramifications are examined to determine their effect on international cooperation and coercion.

**LAW 926 INTERNATIONAL BUSINESS TRANSACTIONS COURSE.** (3)
This course will cover the basic legal structure regulating international trade. Topics covered include: international sales contracts, international finance, international civil litigation and arbitration (jurisdiction, choice of law, enforcement of foreign judgments and arbitration awards), tariff and non-tariff trade barriers, export licensing, international aspects of intellectual property (patents, trademarks and copyrights), regulation of foreign investment, regional trade organization with emphasis on the EEC and North American Free Trade Area and fundamentals of taxation of international transactions.

**LAW 927 LEGISLATION.** (3)
This course provides an introduction to legislation and the legislative process, with an emphasis on federal legislation. Among the subjects considered are theories of representation by the legislature, includes one person-one vote; legal process theory and the roles that judicial review and separation of powers play in that theory; and statutory construction, including the rules and canons of statutory construction and the use of legislative history in interpreting statutes.

**LAW 928 EMPLOYEE BENEFITS LAW.** (3)
This course provides a broad overview of federal law governing employee benefits. Topics covered include: origins and fundamentals of the pension system, origins of ERISA, taxation of employee benefits, fiduciary rules, and preemption. Students who take this course should have completed a basic tax course.

**LAW 929 COPYRIGHT LAW.** (3)
This course provides a broad understanding of most aspects of this branch of intellectual property including copyrightable subject matter, standards for protection, registration and deposit requirements, the bundle of rights, remedies, standards for infringement, defenses to infringement including fair use, and a variety of other concepts. Intellectual Property is not a prerequisite. Grades will be based on three writing projects assigned during the semester.

**LAW 930 ANTITRUST LAW.** (2-3)
The body of law structuring economic organization and activities in a free enterprise national system. Major matters considered in the course are government creation and regulation of the legal monopolies, controls over collaborative conduct of competing economic entities, and legal controls over the vertical distributive relationship of suppliers, dealers, and customers.

**LAW 931 STATE AND LOCAL TAXATION.** (2-3)
This course provides an introduction to the fundamentals of state and local taxation. Topics covered include: property taxation, sales taxation, corporate taxation, and constitutional limitations on state and local taxation.

**LAW 950 SEMINAR.** (1-3)
Seminar in selected legal problems. Normally, each seminar is centered upon a particular field of legal learning, such as office practice, current constitutional litigation, etc. May be repeated to a maximum of 10 credits.

**LAW 960 TRIAL ADVOCACY BOARD.** (1)
In the second year all students who successfully complete the intra-school competition and are asked to become a member of the Board will receive one hour of pass-fail credit at the end of the spring semester of the third year for meaningful participation in the activities of the Board, which includes national inter-school competitions and conducting the second year membership competition. Prereq: LAW 890.

**LAW 961 MOOT COURT/BOARD.** (1-2)
Second year competition for one hour credit. Those selected for the Moot Court Board receive an additional two hours credit in the third year. Offered on a pass/fail basis only. May be repeated to a maximum of three credits.

**LAW 962 KENTUCKY LAW JOURNAL.** (1-3)
This course, required of all members of the Law Journal staff, offers experience in legal writing, editing, and the process of publication of a scholarly periodical. Offered on a pass/fail basis only.

***LAW 963 JOURNAL OF NATURAL RESOURCES AND ENVIRONMENTAL LAW.** (3)
The course required of all members of the Journal of Natural Resources and Environmental law, offers experience in legal writing, editing and the process of publication of a scholarly journal. Pass-fail only.

**LAW 964 JUDICIAL CLERKSHIP.** (2)
Clerking for trial and appellate judges. May be repeated once with permission of the Dean. Offered on a pass/fail basis.

**LAW 965 LEGAL INTERNSHIP.** (2)
Supervised handling of criminal cases under the limited practice rule of the Kentucky Supreme Court. Instruction and practice in investigation, preparation and trial advocacy. Open to third year students only. May be repeated once with permission of the Dean. Offered on a pass/fail basis.

**LAW 966 MOOT COURT NATIONAL TEAM.** (2)
Participation on Moot Court National Team. National Team members should sign for this course instead of 961 in their third year.

**LAW 967 PRISON INTERNSHIP.** (3)
Supervised handling of cases for prisoners at the Federal Correctional Institution; instruction and practice in interviewing, counseling, negotiation, and study of applicable substantive law. Offered on a pass/fail basis only. Prereq: Completion of all first-year courses.

**LAW 968 RESEARCH PROBLEMS.** (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

**LAW 969 SENIOR RESEARCH PROBLEMS.** (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

# COLLEGE OF DENTISTRY

## CDE Community Dentistry

**CDE 830 DENTAL PRACTICE MANAGEMENT I.** (2)
This course is designed to assist the third-year student in examining and formulating attitudes and values regarding current issues in the dental profession and the health care system. A clinical experience introducing students to use of a dental assistant is also included. Students are provided an opportunity to begin a process of career planning by examining how current issues may affect career options and selections in the future prior to a summer dental practice field experience. Lecture, 36 hours; clinic, 15 hours. Prereq: Third-year standing in the College of Dentistry.

**CDE 841 DENTAL PRACTICE FIELD EXPERIENCE.** (6-10)
Students are provided a full-time, off-campus assignment to a dental practice environment for a period of 6-10 weeks. Students spend an average of 32 hours each week participating in practice management and patient treatment activities under the supervision of a dentist. Approximately eight hours a week are spent in career plan development and in study of the community or region, particularly its health care delivery system and the role of dentistry in that system. Prereq: CDE 830.

**CDE 844 DENTAL PRACTICE MANAGEMENT II.** (7)
This course will provide fourth-year dental students with information needed to establish, manage and maintain a vital dental practice. Recognizing that the career goals of students vary, the course material will encompass a broad range of management principles. This course also includes a seven-week clinical rotation in dental auxiliary utilization. Lecture, 69 hours; clinic, 147 hours. Prereq: CDE 830 or consent of course director.

**CDE 850 COMMUNITY DENTISTRY ELECTIVE.** (1-10)
Elective courses offered by the Department of Community Dentistry provide opportunities for further study of or experience in various aspects of community dentistry. Topics may include analysis and evaluation of scientific literature, principles of scientific communication, dental practice field experiences during the summer and academic year, and principles of health care organization. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## CDS Conjoint Dental Science

**CDS 550 RESEARCH METHODOLOGY AND INSTRUMENTATION.** (2)
Seminars and laboratory work involving methods of several modern research fields. Lecture, one hour; laboratory, two hours. Prereq: D.D.S. or D.M.D. degree; admission to graduate dental program; or consent of instructor.

**CDS 611 CHILD GROWTH AND DEVELOPMENT PART I.** (2)
A seminar course on nature and physiologic control of physical growth, for graduate students in dentistry. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

**CDS 612 CHILD GROWTH AND DEVELOPMENT PART II.** (2)
A seminar course for graduate students in dentistry covering emotional and intellectual growth of children, and diseases and congenital anomalies of children. Prereq: Admission to graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

**CDS 620 CURRENT CONCEPTS IN GERIATRIC HEALTH CARE.** (2)
This course is designed to present principles of geriatric health care. Topics will include normal aging, essentials of geriatric medicine, oral health problems, ethical issues and decision making in care. Also presented are pharmacological considerations and common clinical problems of the older adult. Prereq: Admission to postdoctoral dentistry program or consent of instructor.

**CDS 622 INSTRUCTIONAL SKILLS IN GERIATRIC HEALTH CARE.** (3)
An opportunity to gain knowledge and skills involved in designing, implementing, and evaluating positive learning experiences; and to improve presentation skills for various teaching/learning settings as it relates to the geriatric client and how to transmit this information to other health care personnel. May be repeated to a maximum of nine credits. Prereq: Admission to postdoctoral dentistry program or consent of the instructor.

**CDS 624 ISSUES IN GERIATRIC HEALTH CARE ADMINISTRATION.** (1)
In this course students learn the issues involved in managing the various teaching, research and clinical service components of an academic health sciences center. Topics include personal management skills, organization issues, budgetary and financial management issues and personnel management as it relates to health care of the geriatric client. Prereq: Admission to postdoctoral dentistry program or consent of instructor.

**CDS 631 PRINCIPLES OF DENTAL OCCLUSION.** (2)
This course is designed to give the student as broad as possible a view of the complex subject of dental occlusion. Prereq: Admission to dental graduate program; D.D.S. or D.M.D. degree.

**CDS 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**CDS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**CDS 770 GERIATRIC DENTISTRY SEMINAR—CLINIC.** (2)
In this course participants plan, discuss and evaluate oral health care provided to older adult patients in various settings. Clinic/laboratory, eight hours per week. May be repeated to a maximum of eight credits. Prereq: Admission to the Geriatric Dentistry Fellowship Program.

**CDS 790 RESEARCH IN GERIATRICS.** (1-4)
This course involves student planning and writing of a research protocol, and execution of the research project. Projects and thesis are approved by the course director. Projects may include original or ongoing research within the department of Oral Health Science or other Departments of the Medical Center. Lecture: One to four hours; laboratory: two to 24 hours per week. May be repeated to a maximum of eight credits. Prereq: Admission to Postdoctoral Geriatric Dentistry Program.

**CDS 810 NEW DEVELOPMENTS IN DENTISTRY I.** (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of first-year dental students. May be repeated to a maximum of four credits. Prereq: First-year standing in the College of Dentistry; any course prerequisite will be announced.

**CDS 812 NORMAL HUMAN GROWTH AND DEVELOPMENT.** (1)
This is a lecture course which introduces basic concepts of normal human growth and development from birth through adolescence. Lectures emphasize the time-dependent changes that normally occur during physical and psychological maturation. A special emphasis is directed toward basic knowledge and understanding of craniofacial growth and development of the teeth and occlusion. Lecture, 18 hours. Prereq: ANA 530, ANA 536; concur: ANA 532, ANA 534.

**CDS 813 MANAGEMENT I: INTRODUCTION TO MANAGEMENT FOR THE DENTIST.** (2)
In this introductory course in management for the dentist, basic concepts will be presented which can be applied in the management of time, people, facilities and money. Instruction leading to certification in cardiopulmonary resuscitation is included. Lecture, 45 hours. Prereq: Admission to the College of Dentistry.

**CDS 815 INTRODUCTION TO ORAL HEALTH PRACTICE.** (5)
This course presents a systematic approach to examination and evaluation of the dental patient, including techniques of examination and basic diagnostic procedures. In addition, an introduction to preventative dentistry and infection control is included, as well as rotations through various specialty clinics. Lecture, 66 hours; laboratory, 39 hours; clinic, 15 hours. Prereq: Admission to the College of Dentistry.

**CDS 816 THE PROFESSION OF DENTISTRY.** (1)
This course is an introduction to life in the profession of dentistry. The course will explore normal everyday morality, and consider whether a case can be made for an extraordinary morality or ethic for practitioners. The course will conclude with a brief review of the history of dentistry to enable the student to place the profession of dentistry in cultural and historical perspective. Prereq: Admission to the College of Dentistry.

**CDS 820 NEW DEVELOPMENTS IN DENTISTRY.** (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of second-year dental students. May be repeated to a maximum of four credits. Prereq: Second-year standing in the College of Dentistry; any course prereqs will be announced.

**CDS 821 LOCAL ANESTHESIA.** (1)
The action and dosage of local anesthetic agents used in dentistry are taught as are the proper injection techniques. The technique of venipuncture and administration of intravenous drugs are also included. Patient evaluation and emergency techniques for cardiac and respiratory resuscitation are reviewed. Lecture, six hours; self-instruction, 10 hours; clinic, five hours. Prereq: ANA 534; corequisite: OBI 822.

**CDS 823 MANAGEMENT II: PATIENT COMMUNICATION.** (1)
The primary purpose of this course is to improve students' ability to interact with patients in an empathetic and professional manner. Proper management of all assigned patients is required. Instruction leading to recertification in cardiopulmonary resuscitation is provided. Lecture, 26 hours. Prereq: CDS 813.

**CDS 824 PRINCIPLES OF PATIENT MANAGEMENT I.** (1)
This course presents the rationale for the development of the University of Kentucky College of Dentistry Preliminary, Phase I and Phase II treatment plans and a method of critically evaluating treatment results. Basic UKCD clinical protocol is presented and discussed. Lecture, 25 hours. Prereq: CDS 811 or consent of course director.

**CDS 830 NEW DEVELOPMENTS IN DENTISTRY III.** (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. When offered, this course will be required of third-year dental students. May be repeated to a maximum of four credits. Prereq: Third-year standing in the College of Dentistry; any course prerequisites will be announced.

**CDS 831 CONSCIOUS SEDATION.** (1)
This course is designed to teach the principles of nitrous oxide-oxygen inhalation sedation and intravenous sedation in dentistry. The management of emergencies associated with these techniques and an introduction to the principles of general anesthesia are also included. Lecture, 21 hours; clinic, four hours. Prereq: CDS 821, OBI 824.

**CDS 833 MANAGEMENT III: SPECIAL PATIENT MANAGEMENT.** (1)
This course introduces the dental student to various handicapping conditions and teaches the proper methods of physical management of handicapped patients needed to provide dental care. Proper management of all assigned dental patients is required. Instruction leading to recertification in cardiopulmonary resuscitation is also included. Lecture, 26 hours; laboratory, 3 hours; clinic, 3 hours per term. Prereq: CDS 823.

**CDS 836 DIAGNOSIS AND MANAGEMENT OF FACIAL PAIN.** (2)
An interdisciplinary approach will be used to teach current concepts of the diagnosis and management of facial pain. The course content will be presented in both lecture and clinical laboratory format. Information and physical examination skills presented in the classroom will be reinforced by attendance and active participation in the Facial Pain Clinic. Lecture, 29 hours; laboratory, 2 hours; clinic, 6 hours. Prereq: ANA 538, OBI 824, OSG 820, RSD 822.

**CDS 840 NEW DEVELOPMENTS IN DENTISTRY IV.** (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of fourth-year dental students. May be repeated to a maximum of four credits. Prereq: Fourth-year standing in the College of Dentistry; any course prerequisites will be announced.

**CDS 843 MANAGEMENT IV: GERIATRIC DENTISTRY.** (2)
Emphasis in this course is placed on developing abilities to make individual treatment decisions for elderly dental patients and acquiring positive attitudes towards the provision of oral health care to the aged. Students will make site visits to residential centers for the elderly. Proper management of all assigned dental patients and instruction leading to recertification in cardiopulmonary resuscitation are also included. Lecture, 23 hours; laboratory, 12 hours. Prereq: CDE 810 and CDS 833 or consent of course director.

## END Endodontics

**END 820 ENDODONTICS I.** (2)
This is a lecture-laboratory course introducing the student to the techniques of treating root canals of teeth. Emphasis is placed on the diagnosis and treatment of pulpal and periapical pathosis. Lecture, 15 hours; laboratory, 45 hours. Prereq: RSD 810, 812, and RSD 814, or consent of course director.

**END 821 CLINICAL ENDODONTICS I.** (1)
In this course, students will treat two clinical endodontic cases, one of which shall be a molar. Thirty hours clinic, total. Prereq: END 820.

**END 830 ENDODONTICS II.** (1)
This course concerns the diagnosis and treatment of endodontically related problems. Traumatic injuries, controversies in instrumentation and filling procedures, periodontic-endodontic consideration, surgical endodontics and other selected topics are discussed in depth. Lecture, 20 hours. Prereq: END 821.

**END 831 CLINICAL ENDODONTICS II.** (1)
In this course students will treat routine endodontic cases. Clinic, 54 hours. Prereq: END 821.

**END 841 CLINICAL ENDODONTICS III.** (1)
This course offers dental students further experience in providing endodontic treatment. Clinic, 40 hours. Prereq: END 831 or consent of instructor.

**END 850 ENDODONTICS ELECTIVE.** (1-10)
Elective courses offered by the Department of Endodontics provide opportunities for further study of or experience in various aspects of endodontics. Topics may include diagnosis, case selection, treatment planning, emergency treatment, intracanal medications, obturation materials, periapical surgery, root amputations, and endodontic-periodontic relationships. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of ten credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## OBI Oral Biology

**OBI 650 ORAL BIOLOGY FOR POSTDOCTORAL DENTAL STUDENTS.** (4)
This seminar course provides a review of selected topics in the biological sciences. Emphasis is placed on the use of current literature for an in-depth study of those aspects of the subject particularly relevant to the practice of dentistry. Prereq: Admission to an advanced education program of the College of Dentistry or consent of instructor.

**OBI 720 MICROBIAL STRUCTURE AND FUNCTION.** (4)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as MI 720 and BIO 720.)

**OBI 812 INTRODUCTION TO BIOCHEMISTRY AND NUTRITION.** (3)
This is an introductory course in biochemistry and nutrition. Topics include the descriptive chemistry of carbohydrates, lipids, proteins, and nucleic acids; the nature of enzyme action, acid-base balance, caloric value of nutrients and water- and fat-soluble vitamins. Special emphasis is given to the topics of connective tissue, fluoride, dental caries and the biochemical principles of drug action. Lecture, 54 hours. Prereq: Admission to the College of Dentistry or consent of course director.

**OBI 814 CELL FUNCTION.** (3)
The intermediary metabolism of procaryotic and eucaryotic cells, relationships between anabolic and catabolic pathways, and cellular regulatory mechanisms operative within and between metabolic processes. Study includes nucleic acid and protein synthesis; metabolic control mechanisms; carbohydrate, lipid and amino acid metabolism; and bioenergetics. Information is related to current concepts of oral disease and its prevention. Lecture, 56 hours. Prereq: OBI 812 or consent of course director.

**OBI 816 PRINCIPLES OF MICROBIOLOGY AND IMMUNOLOGY.** (3)
This course is a two-part introduction to microbiology and immunology. Part I, Principles of Microbiology, contains basic microbial structure, function, taxonomy and genetics; principles of chemotherapy and drug resistance; and methods of disinfection and sterilization. Part II, Principles of Immunology, is an overview of mammalian host defenses followed by a detailed description of the molecular basis of the immune response. Lecture, 47 hours. Prereq: OBI 814 or consent of course director.

**OBI 818 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS I. (2)**
This course presents the basic principles of drug action with respect to absorption, distribution, metabolism, and excretion. As an introduction to the organ systems, the physiological aspects of conducting and contracting tissues, connective tissues, lining and secretory tissues, and other special tissues are discussed. The pharmacology of antimicrobial drugs also is presented. Lecture and self-instruction, 38 hours. Prereq: OBI 814 or consent of course director.

**OBI 822 INFECTIOUS DISEASES. (3)**
This course presents the biologic and clinical basis of infectious disease using an organ system approach. Infections of all major organ systems, including the oral cavity, are examined. Emphasis is placed on the role of the host in controlling the initiation and progression of infectious disease. Lecture, 56 hours. Prereq: OBI 816 or consent of course director.

**OBI 824 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS II. (4)**
This course presents the physiology and pharmacology of mammalian nervous and respiratory systems, as relevant to the practice of dentistry. Special emphasis is placed on classes of therapeutic agents which act on these systems, including local anesthetics, analgesics, sedatives and hypnotics, and drugs used to treat respiratory disorders. Interaction of basic physiology and pharmacology with clinical science is stressed. Lecture/self-instruction, 70 hours. Prereq: OBI 818 or consent of course director.

**OBI 826 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS III. (4)**
This course presents the physiology and pharmacology of the dental hard tissues and the cardiovascular, endocrine, reproductive, renal and gastrointestinal systems. Emphasis is on aspects particularly relevant to dentistry, e.g., dentin sensitivity, cardiovascular and endocrine diseases, calcium homeostasis, temperature regulation, metabolism, and effects of stress on physiological processes. Therapeutic agents which act on these systems are presented. The interaction of physiology and pharmacology with clinical science is stressed. Lecture/self instruction, 64 hours. Prereq: OBI 824 or consent of course director.

**OBI 850 ORAL BIOLOGY ELECTIVE. (1-10)**
Elective courses offered by the Department of Oral Biology provide opportunities for further study of or experience in various aspects of oral biology. Topics may include seminars in new developments in the basic sciences, basic research in the laboratory, and the development of a particular biological topic of mutual interest to the student and faculty member. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks of laboratory research. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## ODM Oral Diagnosis and Oral Medicine

**ODM 820 ORAL RADIOLOGY. (1)**
This course is designed to achieve proficiency in the interpretation of intraoral and extraoral dental radiographs. Also pedodontic, panoramic and occlusal techniques and interpretations are reviewed. Principles of image formation, radiation biology, and special radiographic procedures for the dentist are included. Lecture/seminar, 29 hours. Prereq: CDS 811 or consent of course director.

**ODM 821 CLINICAL ORAL DIAGNOSIS I. (1)**
This course consists of two components: 1) examination, diagnosis, and treatment planning for patients assigned to dental students in general clinics; and 2) an emergency clinic assignment in which the students will diagnose and treat patients with acute oral problems. Clinic, 30 hours. Prereq: CDS 811; Coreq: CDS 824.

**ODM 830 MANAGEMENT OF THE MEDICALLY COMPROMISED DENTAL PATIENT. (1)**
This course covers a variety of common medical disorders which may be encountered in dental patients. General descriptions, pathophysiology, signs and symptoms, and current medical treatment for each disorder are included as well as detailed management guidelines for dental care. Lecture/self instruction, 25 hours. Prereq: OPT 820 or consent of course director.

**ODM 831 CLINICAL ORAL DIAGNOSIS II. (1)**
This course is a continuation of ODM 821 and also consists of two components: 1) examination, diagnosis and treatment planning for patients assigned to dental students in general clinics; and 2) emergency clinic assignments in which the students will diagnose and treat patients with acute oral problems. Clinic, 40 hours. Prereq: ODM 821; coreq: CDS 832.

**ODM 841 CLINICAL ORAL DIAGNOSIS III. (1)**
This course is a continuation of ODM 831 and also consists of two components: (1) examination, diagnosis and treatment planning for patients assigned to dental students in general clinics; and (2) emergency clinic assignments in which the students will diagnose and treat patients with acute oral problems. Clinic, 40 hours. Prereq: ODM 830 and ODM 831.

**ODM 850 ORAL DIAGNOSIS ELECTIVE. (1-10)**
Elective courses offered by the Department of Oral Diagnosis and Oral Medicine provide opportunities for further study of or experience in various aspects of oral diagnosis and medicine. Topics may include extraoral radiology, advanced X-ray technique, oral medicine, and clinical laboratory experience. Hours variable ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## OFP Oral Health Practice/ Orofacial Pain Center

**OFP 634 CURRENT CONCEPTS IN TEMPOROMANDIBULAR DISORDERS. (3)**
This course provides the student with information on the anatomy, physiology and function of the masticatory system. The etiology, diagnosis and treatment of temporomandibular disorders will be emphasized. Lecture, 41 hours; laboratory, 15 hours per semester. Prereq: Acceptance into the College of Dentistry M.S. Program and/or consent of the College of Dentistry's Director of Graduate Studies and the course director.

**OFP 636 CLINICAL MANAGEMENT OF TEMPOROMANDIBULAR DISORDERS. (3)**
This course provides the student with clinical experience in the diagnosis and management of temporomandibular disorders. The student will provide treatment for patients referred to the Orofacial Pain Center under the supervision of the course director. Clinic, 144 hours. Prereq: Acceptance into the College of Dentistry M.S. Program and/or consent of the College's Director of Graduate Studies and the course director.

**OFP 700 OROFACIAL PAIN TREATMENT PLANNING SEMINAR. (2)**
This course will provide the student with experience in diagnosing and treatment planning various orofacial pain patients. Lecture: 32 hours per year or 16 hours per semester. Prereq: Acceptance into the College of Dentistry M.S. Program and/or consent of the College's Director of Graduate Studies and the course director.

**OFP 734 CURRENT CONCEPTS IN OROFACIAL PAIN. (3)**
This course provides the students with information on non-masticatory orofacial pain problems. The etiology and differential diagnosis of head and neck pain will be emphasized. The student will learn the dentist's role in the management and/or referral of complex facial pain problems. Prereq: OFP 634 and OFP 636.

**OFP 736 CLINICAL MANAGEMENT OF OROFACIAL PAIN. (3)**
This course provides the student with clinical experience in the diagnosis and management of complex orofacial pain problems. The student will provide treatment for patients referred to the Orofacial Pain Center under the supervision of the course director. Clinic, 144 hours. Prereq: OFP 634 and OFP 636.

## OHP Oral Health Practice

**OHP 850 INDEPENDENT WORK IN ORAL HEALTH PRACTICE. (1-3)**
An elective course offered by the department of Oral Health Practice. Students may work on individual projects in one or more of the disciplines encompassed by this department under the direction of a faculty member. The work should involve independent laboratory or clinical research and include supporting literature searches. The end result should be either a table clinic presentation or a paper suitable for publication. The minimum number of hours to be spent on the project and the means of evaluation will be decided before beginning the project. May be repeated to a maximum of 12 credits. Prereq: Specific course prerequisites and year in dental school will depend on the nature of the proposed project; consent of instructor.

## OHS Oral Health Science

**OHS 850 INDEPENDENT WORK IN ORAL HEALTH SCIENCE. (1-3)**
An elective course offered by the department of Oral Health Science. Students may work on individual projects in one or more of the disciplines encompassed by this department under the direction of a faculty member. The work should involve independent laboratory or clinical research and include supporting literature searches. The end result should be either a table clinic presentation or a paper suitable for publication. The minimum number of hours to be spent on the project and the means of evaluation will be decided before beginning the project. May be repeated to a maximum of 12 credits. Prereq: Specific course prerequisites and year in dental school will depend on the nature of the proposed project; consent of instructor.

## OPT Oral Pathology

**OPT 651 GRADUATE ORAL PATHOLOGY. (3)**
Seminar course in advanced oral pathology. Prereq: Dental degree and enrollment in a graduate program of the College of Dentistry, or consent of instructor.

**OPT 820 GENERAL PATHOLOGY FOR DENTAL STUDENTS. (2)**
This is a basic course covering the principles of general pathology and the common disorders affecting the major organ systems. Emphasis is placed on cell damage, inflammation, neoplasia, immunology and systemic diseases that affect dental patient management. Lecture, 43 hours. Prereq: Enrollment in the College of Dentistry, ANA 530 and ANA 532; or consent of course director.

**OPT 830 ORAL PATHOLOGY I. (2)**
This is a comprehensive lecture course on oral and paraoral diseases. The course deals mainly with the clinical aspects of oral disease, with emphasis on clinical and/or radiographic appearance, etiology, management and prognosis. Lecture, 41 hours. Prereq: OPT 820 or consent of course director.

**OPT 832 ORAL PATHOLOGY II. (1)**
This course teaches the dental student an effective approach to patients with oral lesions. It will stress the following: development of a reasonable differential diagnosis list, procedures to be used in obtaining a definitive diagnosis, management of the patient after a diagnosis has been made, and treatment if indicated. Attendance at one lecture and one session of Head and Neck Oncology Clinic is included in the course. Seminar, 26 hours; clinic, three hours. Prereq: OPT 830.

**OPT 840 ORAL PATHOLOGY III. (1)**
This is an advanced course in oral pathology in which various diseases and abnormal conditions of the head, neck, and oral cavity are presented. The pertinent information on several selected cases will be on display for a week each and then followed by a lecture/discussion period for the development of a differential diagnosis, establishment of a definitive diagnosis, and discussion of treatment and prognosis. Attendance at one lecture and one session of Head and Neck Oncology Clinic is included in the course. Lecture, 17 hours; clinic, three hours. Prereq: OPT 832.

**OPT 850 ORAL PATHOLOGY ELECTIVE. (1-10)**
Elective courses offered by the Department of Oral Pathology provide opportunities for further study of or experience in various aspects of oral pathology. Topics may include principles of clinical and histologic diagnosis, the management of patients with oral disease, and discussions of specific oral diseases. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## ORT Orthodontics

**ORT 610 CRANIO-FACIAL FORM. (3)**
Applied radiographic anatomy for graduate students in dentistry. Prereq: Admission to graduate dental programs; D.D.S. or D.M.D. degree.

**ORT 620 ORAL-PHARYNGEAL FUNCTION, PART I. (2)**
Basic and applied physiology for graduate students in dentistry. Class, two and one-half hours. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

**ORT 621 ORAL-PHARYNGEAL FUNCTION, PART II. (2)**
A continuation of ORT 620, emphasizing speech physiology and language development. Lecture, two and one-half hours. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

**ORT 660 ORTHODONTIC DIAGNOSIS. (1)**
This course emphasizes the principles of data collection and diagnosis for planning comprehensive orthodontic treatment. Lecture, 24 hours. May be repeated to a maximum of two credits. Prereq: Admission to a postdoctoral program of the College of Dentistry.

**ORT 661 ORTHODONTIC SEMINAR-CLINIC. (3)**
Seminar, laboratory and clinical instruction in orthodontic theory and practice. Lecture, three hours; laboratory, 15 hours. May be repeated to a maximum of 12 credits. Prereq: ORT 660.

**ORT 662 ORTHODONTIC TECHNIQUE. (3)**
In this technique course, management of orthodontic apparatuses, sequence of treatment, and mechanics in comprehensive orthodontic therapy are covered. Laboratory, 100 hours. May be repeated to a maximum of six credits. Prereq: Admission to a postdoctoral program of the College of Dentistry.

**ORT 664 BIOMECHANICS. (1)**
Biological reactions of the periodontal and craniofacial structures during orthodontic treatment, as well as theoretical mechanical principles of tooth movement are taught in this course. Lecture, 22 hours. May be repeated to a maximum of two credits. Prereq: Admission to a postdoctoral program in the College of Dentistry.

**ORT 710 MANAGEMENT OF COMPLEX OROFACIAL DEFORMITIES.** (1)
Seminar discussions of techniques in orthodontic problem solving and planning treatment for patients with orofacial deformities refractory to either orthodontic therapy or oral surgery but which are resolvable by utilizing combinations of orthodontic and oral surgical therapies. Lecture, one hour per week; laboratory, one hour per week. Prereq: ORT 660 or permission of instructor.

**ORT 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ORT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
Maximum of nine weeks residence credit. Prereq: Admission to the orthodontic graduate program of the College of Dentistry or consent of instructor.

**ORT 770 ORTHODONTIC SEMINAR.** (1)
Seminar in orthodontic theory and practice for advanced graduate and postdoctoral students in orthodontics. May be repeated to a maximum of six credits. Lecture, three hours. Prereq: Admission to the Orthodontics Graduate Program and consent of course director.

**ORT 790 RESEARCH IN ORTHODONTICS.** (1-5)
Research in orthodontics. May be repeated to a maximum of five credits. Prereq: Admission to the orthodontic graduate program of the College of Dentistry; special permission.

**ORT 822 ORTHODONTICS I.** (3)
This course concerns the development of knowledge and skills needed to conduct a thorough orthodontic diagnosis and to plan orthodontic therapy. Lectures are oriented to data base collection, analysis and interpretation. Laboratory exercises provide opportunity to develop skills in analysis of facial proportions, analysis of diagnostic dental casts, cephalometric tracings, formulating a prioritized problem list and development of long-term and short-term treatment goals. A clinical experience is provided to collect records in a child patient. Seminar discussions are provided to discuss and review the data base. Lecture, 12 hours; laboratory, 19 hours; seminar, 18 hours; clinic, four hours. Prereq: Second year standing in College of Dentistry, CDS 812.

**ORT 830 ORTHODONTICS II.** (1)
This course concerns the teaching of preclinical orthodontic technique and theory. The course is designed to give the student a basic understanding of the skills required to fabricate fixed and removable appliances that are typically indicated for limited tooth movement in interceptive orthodontics and adjunctive orthodontic treatment in a general practice setting. Lecture, 14 hours; laboratory, 28 hours. Prereq: CDS 812, ORT 822.

**ORT 841 CLINICAL ORTHODONTICS.** (1)
This clinical course requires the students to analyze and diagnose the present and developing occlusal disharmonies in their assigned patients and to provide therapy for those patients who need tooth movements judged to be within the scope of the general practice of dentistry. Clinic, 50 hours. Prereq: ORT 820 and consent of course director.

**ORT 850 ORTHODONTIC ELECTIVE.** (1-10)
Elective courses offered by the Department of Orthodontics provide opportunities for further study of or experience in various aspects of orthodontics. Topics may include principles of comprehensive orthodontic treatment, types of orthodontic appliances, and methods of correcting facial skeletal problems. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## OSG Oral and Maxillofacial Surgery

**OSG 651 ANATOMICAL RELATIONSHIPS IN SURGERY.** (1)
A seminar course for dental graduate students in areas other than surgery, emphasizing anatomical and surgical principles applicable to all dental specialties. Prereq: Admission to graduate or post-doctoral programs of College of Dentistry; D.D.S. or D.M.D. degree.

**OSG 820 ORAL SURGERY I.** (1)
The general objectives of this course are to teach the student the significance of a history and physical examination, how to identify and use basic oral surgery instruments, how to perform basic oral surgical techniques including the removal of teeth and preparation of the mouth for dentures. Lecture, 20 hours. Prereq: CDS 811 or consent of course director.

**OSG 830 ORAL SURGERY II.** (1)
This course is an overview of the specialty of oral surgery. The student is introduced to the surgical management of congenital and acquired abnormalities of the oral structures and associated parts. Management of odontogenic infection, cysts and tumors is presented, as well as the role of the dentist in the care of head and neck cancer patients. The diagnosis and management of facial fractures also are presented, particularly as they relate to the general practitioner. Lecture, 25 hours. Prereq: OSG 820 or consent of course director.

**OSG 831 ORAL SURGERY ROTATION I.** (1)
This course teaches the management of the ambulatory oral surgical patient. It includes patient evaluation, control of pain and anxiety, performance of minor oral surgical procedures, treatment of acute and chronic oral infections and of complications associated with oral surgery, and the use of the problem-oriented record. Slide-text programs and reading assignments supplement the outpatient clinical experience. Clinic, 48 hours. Prereq: CDS 821 and OSG 820 or consent of course director.

**OSG 841 ORAL SURGERY ROTATION II.** (2)
In this course students learn the management of oral surgical patients in a hospital. It consists of a full-time rotation on the oral surgery hospital service, including standing in-hospital night call with the oral surgery house staff. Students assist in patient care and perform procedures such as exodontia and biopsy. Oral surgical management of comprehensive care patients in the outpatient clinic is also included. Clinic, two weeks. Prereq: OSG 830 and OSG 831.

**OSG 850 ORAL SURGERY ELECTIVE.** (1-10)
Elective courses offered by the Department of Oral Surgery provide opportunities for further study of or experience in various aspects of oral surgery. Topics may include hospitalized and ambulatory patient management, emergency care, operating room experience, pain and anxiety control, and surgical technique. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## PDO Pediatric Dentistry

**PDO 820 PEDIATRIC DENTISTRY I.** (1)
This course is designed to introduce basic modern concepts in dentistry for children. Emphasis is placed on principles of child behavior management and basic restorative dentistry techniques. Lecture, 20 hours; laboratory, six hours. Prereq: CDS 812 and second-year standing in the College of Dentistry.

**PDO 830 PEDIATRIC DENTISTRY II.** (2)
In this course in dentistry for children, emphasis will be placed on principles of oral surgical procedures, advanced restorative techniques, diagnosis and treatment of traumatic injuries, preventive dentistry and diagnosis and treatment of oral habits and cosmetic dentistry. Lecture, 36 hours. Prereq: PDO 820.

**PDO 831 CLINICAL PEDIATRIC DENTISTRY I.** (2)
An intermediate clinical course designed to teach comprehensive dental treatment for the child patient. Clinic, 75 hours. Coreq: PDO 830.

**PDO 841 CLINICAL PEDIATRIC DENTISTRY II.** (4)
An advanced clinical course designed to provide the student with an opportunity to practice methods of good parent and patient management. Additionally, the student will become more proficient in technical skills. Prereq: PDO 831 or consent of instructor.

**PDO 850 PEDIATRIC DENTISTRY ELECTIVE.** (1-10)
Elective courses offered by the Department of Pediatric Dentistry provide opportunities for further study of or experience in various aspects of pediatric dentistry. Topics may include management of children with developmental/medical conditions in a hospital, dental treatment of handicapped children and of normal children and adolescents, and further discussion of treatment techniques. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## PER Periodontics

**PER 626 ADVANCED CONCEPTS IN GENERAL DENTISTRY.** (1)
This course presents, by seminar, lecture or continuing education courses, advanced concepts in general dentistry that are essential to the clinical practice of periodontics. It includes advanced instruction in orthodontics, periodontal prosthesis, prosthodontics and oral surgery. May be repeated to a maximum of four credits. Prereq: Admission to a postdoctoral program of the College of Dentistry or consent of course director.

**PER 661 MODERN CONCEPTS IN PERIODONTICS.** (2)
A seminar course designed to present the present understanding of the etiology of periodontal disease and current techniques for treatment of periodontal problems. Prereq: Admission to graduate program of College of Dentistry; D.D.S. or D.M.D. degree.

**PER 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PER 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated for a total of 12 hours. Prereq: Admission to the Periodontics postdoctoral program and consent of director of graduate studies.

**PER 770 TREATMENT PLANNING SEMINAR.** (2)
In this seminar course, graduate students present and discuss diagnosis, prognosis, ideal treatment plans and alternative treatment plans for patients with periodontal disease. Each student gives at least eight case presentations. May be repeated to a maximum of eight credits. Lecture, 40 hours. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

**PER 772 PERIODONTAL BIOLOGY AND PATHOLOGY.** (2)
Seminar discussions, review and evaluation of the literature covering periodontal anatomy, periodontal biology, the pathology of periodontal diseases and etiological factors in periodontal disease. The subject area will be covered in four semesters. May be repeated four times for a maximum of eight credits. Lecture, 40 hours. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

**PER 774 PERIODONTICS SURGICAL SEMINAR.** (1)
In this seminar course participants present, discuss and critique surgical procedures that have been accomplished in the clinic. Reading assignments from the literature augment the clinical discussions and students are encouraged to use the literature to justify their procedures. Cases are presented on a rotating basis. May be repeated to a maximum of four credits. Prereq: Admission to Periodontics postdoctoral program or consent of course director.

**PER 776 PERIODONTAL THERAPY SEMINAR.** (1)
This is an advanced series of seminars on the clinical aspects of periodontal therapy. During the course, the students will learn about various modalities of periodontal therapy as presented in the periodontal literature, e.g., mucogingival treatment, implants and curettage. May be repeated to a maximum of two credits. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

**PER 790 RESEARCH IN PERIODONTICS.** (1-3)
This course involves direct student participation in a research project. Projects and thesis are approved by the course director and may be clinical, laboratory experimental or related to dental education. Projects may include original or ongoing research within the Department of Periodontics or other departments of the Medical Center. May be repeated to a maximum of six credits. Prereq: Admission to the Periodontics postdoctoral program and consent of the department involved.

**PER 820 PERIODONTICS II.** (1)
This course presents the components of the first stages of periodontal therapy. Emphasis is on diagnosis, prognosis, treatment planning and treatment of the periodontally involved patient. The student is also introduced to the principles of periodontal surgery. Lecture, 25 hours; laboratory, two hours. Prereq: PER 810 or consent of course director.

**PER 821 CLINICAL PERIODONTICS II.** (2)
This is a course designed to provide the student with clinical experience so that he can obtain a minimal competence in the applications of periodontal procedures. Therapeutic procedures involving initial periodontal therapy will be performed by each student. Clinic, 50 hours. Prereq: PER 811, or consent of instructor.

**PER 830 PERIODONTICS III.** (1)
This is a surgically oriented course which presents information necessary for the diagnosis, treatment planning and treatment of surgical cases. The information gained is applied to planning treatment for actual surgical cases. Lecture, 24 hours; laboratory, six hours. Prereq: PER 820 or consent of course director.

**PER 831 CLINICAL PERIODONTICS III.** (2)
This is a clinical course which offers the student the opportunity to treat patients with more advanced periodontal disease. Therapeutic procedures will be performed by each student as his patients' needs dictate. Clinic, 50 hours. Prereq: PER 821; corequisite: PER 830; or consent of instructor.

**PER 841 CLINICAL PERIODONTICS IV.** (4)
This clinical course is a continuation of PER 831. The student receives further instruction and experience in diagnosing, planning treatment and treating patients with periodontitis and mucogingival problems. Prereq: PER 830 and PER 831, or consent of instructor.

**PER 850 PERIODONTICS ELECTIVE.** (1-10)
Elective courses offered by the Department of Periodontics provide opportunities for further study of or experience in various aspects of periodontics. Topics may include treatment planning, diagnosis, treatment and prognosis in periodontal disease; periodontal surgery, including suturing; splinting; referrals, maintenance and prevention. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## PRO Prosthodontics

**PRO 820 INTRODUCTION TO COMPLETE DENTURE PROSTHODONTICS.** (4)
A preclinical lecture and laboratory introduction to basic concepts of diagnosis and treatment planning, fabrication, placement and maintenance of complete dentures. This course presents the related biological and mechanical factors that must be incorporated for living tissue to be compatible with complete dentures. The methods and materials for constructing complete dentures are presented, and certain laboratory phases of construction are performed by the student in simulated situations. Lecture, 30 hours; laboratory, 68 hours. Prereq: ANA 530, ANA 534 and RSD 814.

**PRO 821 CLINICAL COMPLETE DENTURE PROSTHODONTICS. (1)**
The treatment of a patient with complete maxillary and mandibular denture needs is performed in the clinic by the student. The student will assist an upper level student in the examination of a complete denture and a removable partial denture recall patient. Clinic, 52 hours. Coreq: PRO 820.

**PRO 824 REMOVABLE PARTIAL DENTURES. (2)**
This course is designed to teach the student the basic principles and the practical procedures in providing a therapeutic and functional removable restoration. The course also presents the laws and effects of leverages as related to removable partial dentures as well as the considerations for support, occlusion, and health of all oral structures. Lecture, 13 hours; laboratory, 39 hours. Prereq: PRO 820.

**PRO 830 ADVANCED REMOVABLE PROSTHODONTICS. (1)**
This course is a continuation of PRO 820. It presents more advanced technique and treatment planning for complex prosthodontic needs. Subjects included are immediate dentures, overdentures and dental implants. Lecture, 21 hours. Prereq: PRO 820 and PRO 824.

**PRO 831 CLINICAL REMOVABLE PROSTHODONTICS. (2)**
A patient with complete denture needs is treated by the student clinically in the course. The student may opt to treat a patient with immediate, intermediate or overdenture needs. He may initiate and/or complete the treatment of two patients with removable partial denture needs. The student may also treat an optional, additional patient in need of a complete or removable partial denture. The student will recall a minimum of two removable prosthodontic patients and perform any treatment necessary for these patients. Clinic, 110 hours. Prereq: PRO 821; coreq: PRO 830.

**PRO 841 ADVANCED CLINICAL REMOVABLE PROSTHODONTICS. (2)**
This course covers basically the same area as PRO 831 with the exception that the student is to treat the patient with complete denture needs with less supervision from the instructors. If not done previously, the student must initiate and complete the treatment of two patients with removable partial denture needs. The student will recall three removable prosthodontic patients and will perform any treatment necessary for these patients. Clinic, 114 hours. Prereq: PRO 831.

**PRO 850 PROSTHODONTICS ELECTIVE. (1-10)**
Elective courses offered by the Department of Prosthodontics provide opportunities for further study of or experience in various aspects of prosthodontics. Topics may include treatment of patients who require complete dentures, removable partial dentures and overdentures; maxillofacial prosthodontics; and other prosthodontic treatment procedures. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

## RSD Restorative Dentistry

**RSD 812 PRINCIPLES OF OCCLUSION AND TOOTH MORPHOLOGY. (6)**
This course includes a detailed study of the teeth, individually and collectively. The significance of tooth form and function is emphasized as is the relationship of this knowledge to preventive clinical dentistry. Those principles of occlusion and mandibular physiology which are common to all disciplines of clinical dentistry are coordinated to provide the student with a basic understanding of the fundamentals involved. Lecture, 24 hours; laboratory, 118 hours; self-instruction, 25 hours. Prereq: Admission to College of Dentistry or consent of course director.

**RSD 814 PRECLINICAL RESTORATIVE DENTISTRY I. (5)**
This course is a preclinical introduction to the etiology, pathology, prevention and treatment of dental caries. Fundamentals of dental hard-tissue surgery and the restoration of these tissues with silver amalgam, intermediate restorative materials, composite restorative material, and acrylic resin are presented. The materials science and correct manipulation of these materials are emphasized. Procedures are done on manikins and extracted teeth in a laboratory setting. Lecture, 37 hours; laboratory, 91 hours. Prereq: Admission to the College of Dentistry or consent of course director.

**RSD 821 CLINICAL RESTORATIVE DENTISTRY I. (3)**
This course emphasizes clinical application of the principles taught in preclinical courses. Concepts of diagnostic and therapeutic procedures as well as preventive measures are applied in the clinic with emphasis on the demonstration of competency in rendering primary care type treatment procedures. Prereq: RSD 814; coreq: RSD 824.

**RSD 822 DIAGNOSIS AND TREATMENT OF TEMPOROMANDIBULAR DISORDERS. (3)**
This course is directed toward the examination, diagnosis, treatment planning and treatment of functional disturbances of the masticatory system. Primary emphasis will be placed on acute muscle disorders and disc-interference disorders. The course emphasizes both theory and practice and includes clinical experience in the examination and treatment of functional disturbances in the masticatory system. The student will gain experience in using articulators, fabrication of occlusal splints and preclinical experiences in selective grinding. Lecture, 31 hours; clinic, 29 hours; laboratory, 27 hours. Prereq: CDS 811, RSD 812.

**RSD 824 PRECLINICAL RESTORATIVE DENTISTRY II. (6)**
This course is a preclinical continuation of RSD 814, placing emphasis on dental hard tissue surgery for extensively damaged teeth and on their restoration to meet the biological needs of the patient. Tooth preparation and restoration using dental casting alloys are performed on manikins and extracted teeth. The materials science and correct manipulation of investments, alloys and cements used to make cast restorations are emphasized. Knowledge gained in dental morphology and occlusion is applied in this course. Lecture, 42 hours; laboratory, 114 hours. Prereq: RSD 814 or consent of course director.

**RSD 830 PRINCIPLES OF FIXED PROSTHODONTICS. (2)**
This course is a lecture series concerning diagnosis and treatment planning for fixed prosthodontics care and the principles of providing that care. The relationship of tooth restoration and replacement to occlusion, periodontics, orthodontics and removable prosthodontics in both treatment planning and treatment is emphasized. Lecture, 33 hours; self-instruction, 11 hours. Prereq: RSD 821 and RSD 824.

**RSD 831 CLINICAL RESTORATIVE DENTISTRY II. (4)**
A continuation of RSD 821 as well as some clinical application of principles taught in RSD 824. The emphasis continues to be on the delivery of primary care type treatment with increasing competency and proficiency. Some emphasis is directed toward elementary experiences in rehabilitative type treatment procedures and occlusal dysfunctions. Clinic, 120 hours. Prereq: RSD 821 and RSD 824; coreq: RSD 830 and RSD 834.

**RSD 832 DENTAL BIOMATERIALS. (2)**
In this course, the materials science, proper manipulation and biocompatibility of a wide variety of dental biomaterials are examined. The durability and biocompatibility of similarly utilized materials are compared. Diagnosis of the causes of clinical materials-related failures is emphasized. Lecture, 40 hours. Prereq: PRO 820 and RSD 824 or consent of course director.

**RSD 834 PRECLINICAL RESTORATIVE DENTISTRY III. (3)**
This is a preclinical course with emphasis on dental hard tissue surgery and restorative procedures for anterior and posterior fixed prosthodontics. A preventive orientation is stressed as theory is applied in practice using manikins. Knowledge gained in RSD 822 and RSD 824 is applied to more extensive restorations. Lecture, 10 hours; laboratory, 78 hours. Prereq: RSD 821 and RSD 824.

**RSD 840 RESTORATIVE DENTISTRY UPDATE. (1)**
Students are provided current information on advanced restorative dentistry clinical procedures and materials. Emphasis will be given to diagnosis, treatment planning and treatment of the complex restorative dentistry patient. The format of the course will be "clinical case presentation." Prereq: RSD 830 and RSD 834.

**RSD 841 CLINICAL RESTORATIVE DENTISTRY III. (3)**
As the final phase in the undergraduate clinical continuum, this course continues to emphasize primary care concepts and proficiency. In addition, more complicated rehabilitative type care and occlusal dysfunction problems are encountered by the student under faculty supervision. Clinic, 145 hours. Prereq: RSD 830, RSD 831 and RSD 834.

**RSD 850 RESTORATIVE DENTISTRY ELECTIVE. (1-10)**
Elective courses offered by the Department of Restorative Dentistry provide opportunities for further study of or experience in various aspects of restorative dentistry. Topics may include occlusion in oral reconstruction, philosophies of occlusion, complex restorative dentistry, dental ceramics and esthetics, and dental physical sciences. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

# COLLEGE OF MEDICINE

**MD 500 SPECIAL TOPICS COURSE. (1-3)**
Interdisciplinary, topical or experimental course, approved by the Dean of the College of Medicine; content variable, depending upon instructor(s). A particular topic can be offered no more than twice under the course number MD 500. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**MD 810 PHYSICIANS, PATIENTS AND SOCIETY. (5)**
In small groups, students will work with a preceptor to study twelve written clinical situations. Students will contemplate, investigate, comprehend, and discuss biological/clinical, psychological, social, economic, ethical, legal, and professional issues concerning the problem-based histories. Prereq: Admission to UK College of Medicine.

**MD 811 INTRODUCTION TO THE MEDICAL PROFESSION. (6)**
The Introduction to the Medical Profession course will combine small group meetings, lecture, and practical experience in providing students with the basic skills necessary to successfully engage in clinical rotations. First year medical students will participate in four segments: observation period, interviewing and communication skills, physical examination and physical diagnosis, and clinical decision making sessions. Prereq: Admission to UK College of Medicine.

**MD 831 INTEGRATIVE COLLOQUIUM. (2-4)**
This course will allow junior medical students, using the problem based learning approach, to explore medical cases that have multidimensional aspects involving not only the patient's disease but issues of ethics, societal problems, familial considerations, and economic issues which are relevant to the development of the truly complete physician. A series of approximately 7-8 problem cases will be presented in small groups with faculty mentors. They will study various aspects of a patient's condition allowing for consideration of family, community, physician and societal responsibilities. When possible, the students will be joined by patients with the problem being discussed. Issues may include situations involving alcoholism and substance abuse, AIDS, brain death and organ procurement. Medical problems which often have these associated issues will be used as the presenting problem. Laboratory, 40 hours per week per credit. Prereq: Promotion to third year medical school.

***MD 832 CLINICAL NEUROSCIENCES/NEUROLOGY. (4)**
This course provides opportunity for third year medical students to recognize, treat, and understand the etiology and pathology of common neurologic disorders and emergencies. Laboratory, forty hours per week. Prereq: Admission to third year of medical curriculum.

**#MD 833 CLINICAL NEUROSCIENCES/PSYCHIATRY. (4)**
This course provides opportunity for third year medical students to recognize, treat, and understand the etiology and pathology of common psychiatric disorders and emergencies. Laboratory, forty hours per week. Prereq: Admission to third year of medical curriculum.

**MD 850 INTEGRATIVE STUDIES. (4)**
This course is provided for senior medical students who are interns in the internal medicine residency program. The course focuses on the study of scientific, psychosocial, ethical, economic, preventive, political, legal, health policy, etc., aspects of contemporary medical practice. It is tutorial in form, involves problem-based-learning and the study of detailed, complex medical case histories. In interpreting these cases, students draw on the medical and scientific literature, computer data bases, the premedical and medical faculty, and on the expertise of nurses, hospital administrators, ethicists, and other University and community scholars and practitioners. Prereq: Three years of Medical School.

## ANA Anatomy and Neurobiology

**ANA 104 ANATOMY AND PHYSIOLOGY. (4)**
This course will cover the general features of the anatomy of the human body and the general aspects of physiology. Early in the semester emphasis will be on anatomy and on physiology in the latter part, with form and function related throughout. Information is presented at the college freshman level. Prereq: Consent of instructor. (Offered in Community College System only.)

***ANA 206 BASIC HUMAN ANATOMY. (3)**
The structure of the human body will be examined at various levels: cellular, tissue and organ system. The gross anatomical arrangement of the body will be studied in a system-by-system format relating structure to function. A regional review will then place the various systems into relationship with one another. This course was specifically designed for students in the prepharmacy program and as such places a major emphasis on the components and organization of the central nervous system. Prereq: Introductory biology/zoology.

***ANA 299 FUNCTIONAL HUMAN ANATOMY. (3)**
The basic concepts of systemic and regional human anatomy are presented. This course correlates certain fundamentals of human embryology and developmental malformations with human anatomy. All organ systems are covered and certain functional and clinical implications are presented. Course utilizes a lecture format with textbook reading assignments and some visual materials (TV tapes and projection slides). Prereq: Introductory courses in biology or zoology.

**ANA 395 INDEPENDENT RESEARCH IN ANATOMY AND NEUROBIOLOGY. (1-3)**
Independent research with faculty members. May be repeated to a maximum of 12 credits. Laboratory, three to nine hours per week. Prereq: Biology or psychology majors with sophomore, junior, or senior standing and consent of a faculty member.

**ANA 396 CURRENT TOPICS IN NEUROBIOLOGY. (1)**
Senior course with reading in current topics in neurobiology. Prereq: Biology or psychology majors with sophomore, junior, or senior standing and consent of a faculty member.

**ANA 503 INDEPENDENT WORK IN ANATOMY. (3)**
Reading and laboratory work in a defined area of anatomy are carried out under the direct supervision of one staff member. Hours of discussion and laboratory work by individual arrangement. May be repeated to a maximum of 12 credits. Prereq: An introductory course in biology, zoology, or botany and consent of instructor.

**ANA 511 INTRODUCTION TO HUMAN ANATOMY. (5)**
The principles of organization of the human body are presented. Gross anatomy lectures initially follow a systemic plan. This is succeeded by a regional presentation. Several methods of studying anatomy are utilized. These include radiology, palpation of living structures, and the demonstration of prosected fresh and fixed materials. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, comparative anatomy or embryology, and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

**ANA 512 MICROSCOPY AND ULTRASTRUCTURE. (4)**
The organization of cells, tissues and organs are presented through lectures and in the laboratory, through the microscopic study of histological sections and illustrations. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, histological techniques, comparative anatomy or embryology and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

**ANA 513 DEVELOPMENTAL ANATOMY. (2)**
Human development is presented through lectures, visual aids, and occasional laboratory demonstrations in conjunction with laboratory exercises in ANA 511. The course deals entirely with intrauterine development, and includes some discussion of common abnormalities. Prereq: ANA 511, which may be taken concurrently, and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

**ANA 516 ANATOMY OF THE NERVOUS SYSTEM. (3)**
The gross and microscopic structure of the central and peripheral nervous systems and their blood supply will be studied. The course will include the functional interpretation of anatomical structures and clinical correlations. Lecture, two hours; laboratory, two hours. Prereq: ANA 511, 512, 513; PGY 511; and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

**ANA 529 CONCEPTS OF MORPHOLOGY. (2)**
The objective of this course is to present concepts of morphology as they concern cells, tissues, or organs, systems and/or regions of the human body. Necessarily, the history of the development of ideas about the selected topic will be surveyed. Inherent also in the presentation of concepts of structure will be the presentation of controversies which have resulted from differing methods and interpretations. Lecture, four hours. Course material will be presented in lectures, seminars, laboratory, through selected readings or a combination of these instructional methods. May be repeated to a maximum of four hours. Prereq: Advanced work in biological sciences and consent of the instructor.

**ANA 530 COMBINED HISTOLOGY AND SPECIAL ORAL MICROANATOMY. (5)**
An analysis of the histological structure and organization of the human body, including an especially detailed treatment of the tissues and organs related to the oral cavity. Prereq: Admission to the College of Dentistry or some background in biology and consent of instructor.

**ANA 532 SYSTEMIC HUMAN ANATOMY. (2)**
A presentation at the gross-anatomical level of the structure and organization of the several organ systems that constitute the human body. Prereq: Entrance requirements of the College of Dentistry or some background in biology and consent of instructor.

**ANA 534 ANATOMY OF THE HUMAN HEAD AND NECK. (3)**
The detailed regional anatomy of the human head and neck is studied by various techniques, the most important of which is dissection. Emphasis is placed on the anatomical relationships with each region. Lecture, two hours; laboratory, six hours. Prereq: ANA 532 or consent of instructor.

**ANA 536 HUMAN EMBRYOLOGY, AN ABBREVIATED COURSE. (1)**
A concise presentation of developmental mechanisms, early development of the embryo, and subsequent development of selected systems and regions of the body. Lecture, one hour. Prereq: ANA 532, ANA 534 or consent of instructor.

**ANA 538 HUMAN NEUROANATOMY, AN ABBREVIATED COURSE. (1)**
A concise presentation of the functional organization of the human nervous system. Lecture, two hours. Prereq: ANA 532, 534 and 536 or consent of instructor.

**ANA 600 SEMINAR IN ANATOMY. (1)**
A weekly seminar devoted to presentation and discussion of classic and new research in the field. May be repeated to a maximum of four credits. Prereq: Admission to the anatomy graduate program or permission of the course director.

***ANA 605 PRINCIPLES OF NEUROBIOLOGY. (4)**
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of neurobiology. Areas covered will include neuronal and glial cell biology, neurotransmitters, signaling mechanisms, neuroanatomy, and neuronal development. The course is designed to provide a brief overview of each of the areas and introduce students to current research questions. The course will consist of lectures and informal presentations in a 'Journal Club' format. The course will be interdisciplinary and will be of interest to graduate students in anatomy, biology, biochemistry, immunology, pharmacy, pharmacology, physiology, psychology and toxicology and to neurology and neurosurgery residents. Prereq: Introductory biochemistry course, or equivalent, and/or consent of instructor. (Same as BCH/NEU/PGY/PHA 605.)

**#ANA 606 MECHANISMS OF NEUROLOGIC DISEASE. (4)**
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of current problems and controversies in neurobiology and clinical neurology. The course will cover a variety of illnesses including epilepsy, neurodegenerative diseases, stroke, psychiatric illness, pain, diseases of immune origin, motor dysfunction and inherited disorders. Prereq: ANA/BCH/NEU/PGY/PHA 605 or consent of instructor. (Same as NEU/PHA 606.)

***ANA 618 MOLECULAR NEUROBIOLOGY. (4)**
This course provides knowledge base and analytical skills in the field of molecular neurobiology. An in-depth introduction to current technologies, their rationale and limitations, will be the focus to address normal brain function and neuropathological conditions. Prereq: BCH 501, 502, NEU 605, or consent of instructor. (Same as BIO/MI/PGY 618.)

**ANA 629 TECHNIQUES OF ANATOMICAL RESEARCH. (2)**
The objective of this course is the familiarization of students with research techniques in anatomy. The relationship will be tutorial. Students will work under the direction of given staff members for determined periods of time, usually on a problem. The exact length of time will depend upon the student's purposes, progress and the techniques. The problem may be new research or a repetition of previous work. May be repeated to a maximum of four hours. Prereq: Previous senior college or graduate level work in biology and consent of instructor.

**ANA 631 ADVANCED HUMAN ANATOMY. (3-5)**
The objective of this course is to meet individual student needs for increased knowledge in particular areas of gross human morphology. Investigations of problems involving gross morphology will be carried out. One or several defined areas of the body will be studied in considerable detail by dissection, by intensive use of the pertinent literature, by the use of visual aids, prosected materials and other appropriate learning aids. Prereq: A background in gross human anatomy equivalent to a medical school course in regional anatomy and consent of course director and/or Director of Graduate Studies in Anatomy and Neurobiology.

**ANA 633 ADVANCED DEVELOPMENTAL ANATOMY. (2-5)**
This is a detailed study of intra-uterine development, both normal and abnormal, usually arranged as a tutorial or small seminar series. Enrollment limited to 10 students. Prereq: ANA 511 or 811 and ANA 513 or their equivalents; or consent of instructor.

**ANA 636 ADVANCED NEUROANATOMY. (3-5)**
The objectives include specific and detailed correlation of microscopic and ultrastructural morphology of structures in the nervous system with function of these structures. Emphasis will be placed on structure-function relationships, neurotransmitters, chemical constituents of the nervous system, neuronal as well as non-neuronal cells, plasticity of the nervous system and developmental biology. The detailed content and emphasis will depend on both the background and goals of the students. Depending on number of credits a student registers for, and the topic and course orientation, laboratory work, library work, written and/or oral presentations may be a course requirement. Prereq: ANA 511, 512, 513, 516, or equivalents, or consent of instructor.

**ANA 638 DEVELOPMENTAL NEUROBIOLOGY. (3)**
An explanation of the processes which contribute to the development of the nervous system. Neurophysiological, cell biological and molecular approaches to cell differentiation, neuronal pathfinding and synapse formation and stabilization will be explored and discussed. Examples will be drawn from both vertebrate and invertebrate preparations. Prereq: BIO 535 or consent of instructor. (Same as BIO/PGY/PSY 638.)

**ANA 662 ULTRASTRUCTURAL ANATOMY. (2-5)**
The objectives of this course are to advance the students' knowledge of the submicroscopic structure of cells and tissues. Correlation of intra- and extracellular morphology and function will be emphasized. Students will do detailed laboratory work in the techniques of electron microscopy. Depending on the number of credits a student registers for, and the topic and course orientation, laboratory work, library work, written and/or oral presentations may be a course requirement. Prereq: ANA 512, previous work in microscopy including histology or cytology, or equivalents, and consent of instructor.

**ANA 748 MASTER'S THESIS RESEARCH. (0)**
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**ANA 749 DISSERTATION RESEARCH. (0)**
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**ANA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)**
May be repeated to a maximum of 12 hours.

**ANA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)**
May be repeated indefinitely.

**ANA 790 RESEARCH IN ANATOMY. (1-12)**
Individualized laboratory and research experience under the supervision of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Consent of the instructor.

***ANA 801 HISTOLOGY FOR PHYSICAL THERAPY STUDENTS. (2)**
This course familiarizes students with the structure and function of the four basic tissues of mammalian organisms. This knowledge is required for treatment of medical and surgical diseases by physical therapy technicians. Prereq: Admission to the College of Allied Health or some background in biology and consent of the instructor.

**ANA 802 NEUROANATOMY FOR PHYSICAL THERAPY STUDENTS. (2)**
A concise account of the functional anatomy of the central nervous system. The anatomical organization is correlated with physiological activity. Emphasis is placed upon the morphological basis for progressively higher levels of control of activity from the simple reflex to voluntary motor activities controlled by the cerebral cortex. This type of knowledge is required for proper understanding and performance of physical therapy technicians in the treatment of medical and surgical disease.

**ANA 811 HUMAN ANATOMY FOR ALLIED HEALTH PROFESSIONS. (5)**
A dissection-based gross anatomy course designed to present the principles of the human body in a regional format with special emphasis on functional/clinical anatomical relationships. Prereq: Enrollment in either the PAS or PT programs of the College of Allied Health Professions or a graduate program in the biomedical sciences. Students from graduate programs outside of Anatomy and Neurobiology must obtain the consent of the course director before registration.

**ANA 813 DEVELOPMENTAL ANATOMY FOR PHYSICAL THERAPY STUDENTS. (1)**
The course of intrauterine somatic development is presented through class discussions, visual aids, and occasional laboratory demonstrations in conjunction with ANA 811. This course should not be elected by a student desiring a detailed review of prenatal human development. Prereq: ANA 811, which may be taken concurrently, or consent of instructor.

**ANA 815 FIRST-YEAR ELECTIVE, ANATOMY. (1-3)**
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Anatomy and Neurobiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**ANA 825 SECOND-YEAR ELECTIVE, ANATOMY. (1-4)**
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Anatomy and Neurobiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**ANA 835 THIRD-YEAR ELECTIVE, ANATOMY. (1-6)**
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**ANA 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)**
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his/her fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or by the permission of the Student Progress and Promotions Committee.

**Approved electives:**

**ANA 850 APPLIED HUMAN ANATOMY**
**ANA 851 RESEARCH IN ANATOMY**

## ANS Anesthesiology

**ANS 815 FIRST-YEAR ELECTIVE, ANESTHESIOLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Anesthesiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**ANS 825 SECOND-YEAR ELECTIVE, ANESTHESIOLOGY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Anesthesiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**ANS 835 THIRD-YEAR ELECTIVE, ANESTHESIOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**ANS 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**ANS 850 CLINICAL CLERKSHIP IN EMANESTHESIOLOGY**
**ANS 851 INTENSIVE CARE UNIT**
**ANS 852 RESEARCH IN ANESTHESIOLOGY**
**ANS 853 CLINICAL CLERKSHIP IN PAIN MANAGEMENT**
**ANS 890 ANESTHESIOLOGY OFF-SITE**

## BCH Biochemistry

**BCH 395 INDEPENDENT WORK IN BIOCHEMISTRY.** (3-12)
Students will carry out a laboratory research project and related reference reading. Laboratory: 9-36 hours per week. May be repeated to a maximum of 12 credits. Prereq: Permission of instructor.

**BCH 401G FUNDAMENTALS OF BIOCHEMISTRY.** (3)
Descriptive chemistry of amino acids and proteins, carbohydrates, lipids and nucleic acids and discussion of major metabolic pathways and of methods of energy production in cells. Lecture, three hours; one optional conference. Prereq: CHE 107, CHE 236 and BIO 152 or equivalent.

**BCH 501 GENERAL BIOCHEMISTRY.** (3)
An introductory course devoted to the structure and function of proteins and enzymes and the generation and storage of metabolic energy associated with the metabolism of carbohydrates, lipids, and amino acids. Prereq: CHE 107, CHE 230 and 232, or equivalent. BIO 152 is also recommended.

**BCH 502 GENERAL BIOCHEMISTRY.** (3)
A continuation of BCH 501. The topics discussed include the molecular basis of gene expression; molecular endocrinology; biochemistry of connective tissue, muscle, erythrocyte, and the immune system; structure, function and metabolism of membranes. The sequence BCH 501, BCH 502 covers the material of BCH 811. Prereq: BCH 501 or equivalent.

**BCH 503 PLANT BIOCHEMISTRY.** (3)
The chemical constituents of plants, their interaction and the regulation of their interaction in key plant metabolic systems will be studied. Included in the course will be discussions of photosynthesis, nitrogen, nitrate reduction, nitrogen assimilation, plant growth and its regulation and the structure and metabolism of constituents unique to plants. Prereq: BCH 501 and 502 or equivalent or consent of instructor. (Same as PPA 503.)

**BCH 504 PHYSICAL BIOCHEMISTRY.** (3)
Thermodynamic, hydrodynamic, structure, and kinetic properties of biological systems and macromolecules. Prereq: CHE 444G or equivalent.

**BCH 517 EXPERIMENTAL METHODS IN BIOCHEMISTRY.** (4)
A laboratory course dealing with the instrumentation and procedures of biochemical research. Because many of the materials used are labile, the course is given in a block during a four-week period at the end of the spring semester. Five days per week during four-week intersession, or summer session. Prereq: BCH 401G, 502 or 811 and consent of instructor.

**BCH 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS.** (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BIO/MI/PPA 601.)

***BCH 605 PRINCIPLES OF NEUROBIOLOGY.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of neurobiology. Areas covered will include neuronal and glial cell biology, neurotransmitters, signaling mechanisms, neuroanatomy, and neuronal development. The course is designed to provide a brief overview of each of the areas and introduce students to current research questions. The course will consist of lectures and informal presentations in a 'Journal Club' format. The course will be interdisciplinary and will be of interest to graduate students in anatomy, biology, biochemistry, immunology, pharmacy, pharmacology, physiology, psychology and toxicology and to neurology and neurosurgery residents. Prereq: Introductory biochemistry course, or equivalent, and/or consent of instructor. (Same as ANA/NEU/PGY/PHA 605.)

**BCH 610 BIOCHEMISTRY OF LIPIDS AND MEMBRANES.** (3)
A lecture and seminar course devoted to intermediary metabolism of lipids and various biochemical aspects of the structure, assembly and functions of biological membrane systems. Prereq: CHE 232, CHE 444G, BCH 401G, 502 or 811. BCH 502 may be taken concurrently.

**BCH 611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS.** (3)
A lecture and seminar course devoted to a study of the principles of nucleic acid chemistry and to the role of nucleic acids in cellular function. Prereq: BCH 401G, 502 or 811.

**BCH 612 STRUCTURE AND FUNCTION OF PROTEINS AND ENZYMES.** (3)
Primarily a lecture course devoted to the relationship of the structure of protein molecules to their biological roles. Proteins will be discussed in terms of their size, shape, conformation, primary structure, catalytic mechanism and regulatory properties. Prereq: BCH 401G, 502 or 811; CHE 444G or consent of instructor. May be taken concurrently with BCH 502.

**BCH 615 MOLECULAR BIOLOGY.** (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: A course in genetics (e.g. BIO 404G) and a course in nucleic acids and elementary molecular biology (e.g. BCH 502) or consent of instructor. (Same as BIO/MI 615.)

**BCH 618 SEMINAR IN BIOCHEMISTRY.** (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field. May be repeated to a maximum of five credits.

**BCH 619 SEMINAR IN BIOCHEMISTRY.** (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field. May be repeated to a maximum of five credits.

**BCH 640 RESEARCH IN BIOCHEMISTRY.** (1-9)
Prereq: Consent of instructor.

**BCH 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**BCH 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**BCH 779 MEMBRANE SCIENCES COLLOQUIUM.** (1)
Outstanding membrane scientists present their current research on biological and/or synthetic membranes. Students read a pertinent paper by the speaker prior to his/her talk and write a short paper on the talk; especially important is relevance of the main points of the talk to membrane science in general and the student's own research in particular. May be repeated to a maximum of six credits. (Same as CHE/CME/PHA/PHR 779.)

**BCH 780 TOPICS IN BIOCHEMISTRY.** (1-3)
A lecture and seminar course offered on topics of special interest to graduate students. May be repeated to a maximum of six credits.

**BCH 811 BIOCHEMISTRY FOR MEDICAL STUDENTS.** (6)
A selective summary of available information on cellular activities at the molecular level. Particular emphasis will be given to the processes by which metabolites are converted into compounds essential to the maintenance or growth of the cell or are oxidized to yield energy in a form which is useful to the cell. Discussions of respiration, nutrition and of the processes by which a constant extracellular environment is maintained are also included. Lecture, five hours; laboratory, one hour. Prereq: Admission to College of Medicine.

**BCH 815 FIRST-YEAR ELECTIVE, BIOCHEMISTRY.** (1-3)
With the advice and approval of his or her faculty advisor, the first year student may choose approved electives offered by the Department of Biochemistry. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass/Fail only. Prereq: Admission to first year, College of Medicine.

**BCH 825 SECOND-YEAR ELECTIVE, BIOCHEMISTRY.** (1-4)
With the advice and approval of his or her faculty advisor, the second-year student may choose approved electives offered by the Department of Biochemistry. The intent is to provide the student with an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass/Fail only. Prereq: Admission to second year medical curriculum and approval of advisor.

**BCH 835 THIRD-YEAR ELECTIVE, BIOCHEMISTRY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**BCH 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved elective:**

**BCH 850 ELECTIVE IN BIOCHEMISTRY**

## BSC Behavioral Science

**BSC 331 BEHAVIORAL FACTORS IN HEALTH AND DISEASE.** (3)
The study of human behavior relating to health and disease and the organization of health care as a social system. Selected concepts from the psychological and social sciences are presented in a biobehavioral frame of reference and applied to the consideration of specific problems.

**BSC 527 SOCIETY AND HEALTH.** (3)
The study of human behavior in illness and of medicine as a complex form of social organization from historical, cross-cultural and contemporary perspectives. Prereq: Consent of instructor. (Same as SOC 527.)

**BSC 529 SURVEY OF MEDICAL ANTHROPOLOGY.** (3)
Cross-cultural survey of health, disease, and healing in folk, primitive, and modern pluralistic societies. Biocultural and ethnomedical approaches in medical anthropology. Prereq: Nine hours of anthropology or consent of instructor. (Same as ANT 529.)

**BSC 546 SOCIAL FACTORS IN MENTAL HEALTH.** (3)
The significance of social, psychological and cultural factors in the recognition and course of mental health problems; the organization of mental health services in society. Prereq: Consent of instructor. (Same as SOC 546.)

**BSC 620 ORIENTATION TO MEDICAL BEHAVIORAL SCIENCE.** (1)
This course offers a structural exposure of students to the varieties of basic and clinical science research and current issues in health care policy under discussion at the University Medical Center. Following weekly attendance at research seminars and clinical rounds, students will present their observations in follow-up discussion groups. May be repeated to a maximum of three credits.

**BSC 626 SURVEY OF HEALTH PSYCHOLOGY.** (3)
A survey of the field of health psychology. It will explore the ways in which social and psychological research contribute to an understanding of health and illness behavior. Prereq: Graduate or professional standing and consent of instructor. (Same as PSY 626.)

**BSC 664 CULTURAL ISSUES IN MENTAL ILLNESS.** (3)
An in-depth discussion of theory and method of the various approaches to cultural and social factors in the etiology, distribution, and treatment of mental illness. Data from non-Western and Western cultures are examined. Prereq: Enrollment in graduate program in anthropology, sociology, psychology, educational and counseling psychology, or consent of instructor. (Same as ANT/PSY 664.)

**BSC 745 RESEARCH METHODS IN MEDICAL BEHAVIORAL SCIENCE.** (3)
This is an applied methods course which will review the various aspects of research and apply them to current medical behavioral studies. The different approaches used by the behavioral and clinical sciences will be reviewed and demonstrated. Prereq: Any methods courses required for a Ph.D. in the department major.

**BSC 765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY.** (3)
(1) Advanced history and theory of medical anthropology; (2) research design, field work, analysis of data in medical anthropology. Prereq: ANT 529 or equivalent, or consent of instructor. (Same as ANT 765.)

**BSC 766 CONCEPTS IN MEDICAL SOCIOLOGY.** (3)
A review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory and to concepts and research on health-related problems of society. Prereq: Consent of instructor. (Same as SOC 766.)

**BSC 770 PSYCHOSOCIAL ISSUES IN HEALTH AND AGING.** (3)
This course will focus on psychosocial issues related to the physical health and functioning of older adults. Topic areas include: theories of aging; age-appropriate research designs; age-related cognitive personality, social and family changes which influence physical health; health behavior and education of older adults; and selected chronic conditions, e.g. Alzheimer's disease, arthritis, depression, diabetes and stroke.

**BSC 772 TOPICAL SEMINAR IN MEDICAL BEHAVIORAL SCIENCE.** (1-3)
Advanced study of selected topics of current importance in medical behavioral science. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**BSC 773 PSYCHOSOCIAL ONCOLOGY.** (3)
This course will introduce the student to the field of psychosocial oncology. Historical and recent developments in the application of behavioral science knowledge and methodology to the understanding and treatment of cancer and the cancer patient will be examined. The role of psychosocial factors in the etiology, prevention, and treatment of cancer will be explored. Emphasis will be placed upon the interaction of biological, psychological, and social factors throughout the course of cancer. Prereq: Graduate standing.

**BSC 774 BEHAVIORAL AND ECOLOGICAL ASPECTS OF HUMAN NUTRITION.** (3)
This course will examine the social ecology of human nutrition using the evolutionary perspective. It will apply the concepts and principles of social science to the study of human nutrition. The course serves also as an introduction to nutritional anthropology. Discussions will focus on the origins of the human diet; human dietary adaptation to diverse ecological and technological situations; social, cultural, behavioral and ecological factors that influence dietary choices in primitive, peasant, modernizing and contemporary societies; and methodological issues in studying food habits and assessing nutritional status. Among the topics that may be addressed are: social, cultural, and psychological factors involved in eating disorders; infant feeding cross-culturally; causes of malnutrition in the Third World as well as in developed countries; ethnic variation in food ideology and food habits; issues in the applicability of anthropometric measures to diverse populations and culturally appropriate approaches to nutritional change. Prereq: Consent of instructor. (Same as ANT 774.)

**BSC 775 HUMAN RESPONSE TO STRESS.** (3)
Human Response to Stress provides an overview of current models and theories of stress, a review of multi-disciplinary approaches to the study of stress in applied settings, and a reading knowledge of selected research findings in the field of stress. Prereq: Consent of instructor.

***BSC 776 SEMINAR IN DEPENDENCY BEHAVIOR.** (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as ANT/PSY/SOC 776.)

**BSC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY.** (3)
Advanced study of contemporary concepts of mental health and mental illness, and their historical development; major forms of response to mental illness. Prereq: Consent of instructor. (Same as SOC 777.)

**BSC 778 BEHAVIORAL FACTORS IN SELECTED DISEASES.** (3)
An exploration of behavioral science concepts which bear on various physical illnesses. The perspective of the course is interdisciplinary, using concepts from the various behavioral science disciplines. Prereq: Consent of instructor.

**BSC 779 BEHAVIORAL FACTORS IN DEATH AND DYING.** (3)
Behavioral concepts are examined which explain reactions of individuals, collectivities and social institutions to the phenomenon of death. Prereq: Consent of instructor.

**BSC 785 COMPARATIVE HEALTH CARE SYSTEMS.** (3)
This seminar will focus on concepts, issues, and research pertaining to health care systems in comparative perspective. It will deal with the following questions. (1) What are the core analytical dimensions of a health care system? (2) How do health care systems connect with the other institutional domains of a society, with its value-system, and with its major cultural and historical trends? and (3) Within the health care system, how are the main constituents of modern medicine related to each other? Prereq: Consent of instructor. (Same as SOC 785.)

**BSC 790 RESEARCH IN MEDICAL BEHAVIORAL SCIENCE.** (1-6)
Individually directed research and reading in particular aspects of medical behavioral science under the supervision of one or more members of the faculty. May be repeated to a maximum of 12 hours. Prereq: Consent of instructor.

**BSC 811 HEALTH AND SOCIETY.** (3)
Concepts and principles from the behavioral sciences in the context of a unifying theory of behavior; psychological, social and cultural variables in understanding human behavior in health and disease; application of behavioral science concepts to the etiology, course and management of health problems; variations in human responses to illness; medicine as a major system of behavior and of interpersonal relationships and social structure within medicine. Seminar format permits exploring selected topics in depth. Prereq: For medical students only.

**BSC 812 INTRODUCTION TO COMMUNICATION AND INTERVIEWING.** (1)
Brief didactic presentations, demonstrations and group discussions on communication concepts and interviewing techniques are followed by video-recorded practice interviews that are reviewed with faculty in seminar and tutorial sessions. Lecture, 2 hours; group discussion, 8 hours; tutorial interviews with critiquing for each student, 10 hours. Prereq: Admission to the College of Medicine.

**BSC 815 FIRST-YEAR ELECTIVE, BEHAVIORAL SCIENCE.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Behavioral Science. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**BSC 825 SECOND-YEAR ELECTIVE, BEHAVIORAL SCIENCE.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Behavioral Science. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**BSC 835 THIRD-YEAR ELECTIVE, BEHAVIORAL SCIENCE.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**BSC 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved elective:**

**BSC 850 ELECTIVE IN BEHAVIORAL SCIENCE**

## CON Conjoint (College of Medicine)

**MC 530 CASE HISTORIES IN HEALTH CARE ETHICS.** (1)
A variety of case histories will be used to highlight and explore difficult decisions and ethical dilemmas faced by health care professionals. Ethical, moral, religious, and legal dimensions of these problems will be explored. Cases will be prepared in writing in advance of each class, and students will be encouraged to select and defend a particular stand for each case. Prereq: Enrollment in one of the colleges of the Medical Center, or permission of instructor.

**CON 818 BASIC SCIENCE-CLINICAL CORRELATION CONFERENCES.** (2)
This course illustrates the interrelation among basic science concepts and their clinical implications. Classroom sessions involve the presentation of case histories of selected illnesses and the discussion of pertinent underlying behavioral, biological and clinical considerations. Individual observations are made in hospital and ambulatory care settings supported by tutorial discussions. Pass-fail only. Prereq: Admission to the College of Medicine.

**CON 831 INTRODUCTION TO CLINICAL CLERKSHIPS.** (1)
This course is designed to introduce students to the responsibilities of the clinical clerk. Students will gain knowledge about the hospital, its wards, services, and administration, and will learn the roles of members of the patient care team. Students will follow the health care experiences of selected patients. Lecture, 4 hours; laboratory, 36 hours per week. Pass/fail only. Prereq: Promotion to the third year.

**CON 841 AMBULATORY MEDICINE.** (2)
This course is provided for senior medical students who are enrolled in the Accelerated Internal Medicine Residency Program. The course is designed to provide the student/resident with a broad survey of outpatient medical care in the primary disciplines that relate to internal medicine. The focus of these rotations will be on the development of clinical skills in interviewing and patient examination, on the use of a comprehensive approach to outpatient diagnosis and management and on the integration of the pathophysiological problems with the psychosocial and economic problems that the patient presents.
Each student will be assigned to a single faculty member in the Division of General Internal Medicine who will act as his/her preceptor. The student will work in that faculty member's clinic one half day to two half days a week depending on the other clinic rotations. In addition to the Medicine experience the student/resident will be assigned one half day per week for the eight-week period to Neurology, office Otalaronology, Gynecology, orthopedics or Sports Medicine, General Surgery, Dermatology and Psychiatry. In each of the clinics, the student/resident will be expected to perform at the level of a houseofficer under the close supervision of the clinic attending. At the end of each week, the General Internal Medicine course preceptor will review the entire week's experience with the student/resident for the purpose of identifying an appropriate reading program to amplify the patient experience. These reading programs will particularly emphasize interviewing techniques, decision analysis, screening methodologies and preventive medicine. Prereq: Required first three years of Medical School.

## DR Diagnostic Radiology

**DR 831 DIAGNOSTIC RADIOLOGY CLERKSHIP.** (1)
This course is an introduction to the indications and use of diagnostic radiology in patient care. Fundamental concepts of diagnosis are briefly covered. The course is a combination of lecture and laboratory exercises and observation periods. Prereq: Admission to third year, College of Medicine.

**DR 835 THIRD-YEAR ELECTIVE, DIAGNOSTIC RADIOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**DR 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the Third and Fourth Year Curriculum and Student Progress Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or by the permission of Third and Fourth Year Curriculum and Student Progress Committee.

**Approved electives:**

**DR 850 FOURTH-YEAR ELECTIVE IN DIAGNOSTIC RADIOLOGY**
**DR 855 NUCLEAR MEDICINE**
**DR 856 PEDIATRIC RADIOLOGY**
**DR 890 OFF-SITE CLERKSHIP IN DIAGNOSTIC RADIOLOGY**

## ER Emergency Medicine

**ER 815 FIRST-YEAR ELECTIVE, EMERGENCY MEDICINE.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Emergency Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**ER 825 SECOND-YEAR ELECTIVE, EMERGENCY MEDICINE.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Emergency Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**ER 835 THIRD-YEAR ELECTIVE, EMERGENCY MEDICINE.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**ER 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**ER 850 FOURTH-YEAR ELECTIVE EMERGENCY MEDICINE**
**ER 853 RESEARCH IN EMERGENCY MEDICINE**
**ER 890 EMERGENCY MEDICINE OFFSITE**

## FP Family Practice

**FP 812 INTRODUCTION TO THE PROFESSION.** (2)
This course is intended to provide first-year medical students with selected learning experiences designed to develop basic knowledge, skills, and attitudes that are important in the education of a physician. Lecture, one hour; discussion, two hours per week. Prereq: Admission to the College of Medicine.

**FP 815 FIRST-YEAR ELECTIVE, FAMILY PRACTICE.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Family Practice. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**FP 825 SECOND-YEAR ELECTIVE, FAMILY PRACTICE.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Family Practice. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**FP 831 PRIMARY CARE CLERKSHIP.** (6)
This course is designed to provide the medical student with practical clinical experiences in ambulatory medical practice. Trainees will also develop problem-solving skills appropriate for evaluating common primary care medical problems. Students will work closely with mentors either at the UK Medical Center or at an AHEC site. Laboratory, 40 hours per week. Prereq: Completion of the preclinical years of medical school and passing of Part 1, NBME.

**FP 835 THIRD-YEAR ELECTIVE, FAMILY PRACTICE.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

***FP 841 FAMILY PRACTICE OFF-SITE PRECEPTORSHIP.** (1-6)
A senior selective in remote sites designed to acquaint the student with the functions, techniques, and experiences associated with a family physician. Students will function in an office-based practice of family physicians, will live in the community and practice primary health care delivery. One credit per week, not to exceed six weeks. Prereq: Admission to the fourth year, College of Medicine.

**FP 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

***FP 850 ACTING INTERNSHIP IN FAMILY PRACTICE**
***FP 852 ELECTIVE IN FAMILY PRACTICE**

## MED Medicine

**MED 815 FIRST YEAR ELECTIVE, MEDICINE.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**MED 821 PHYSICAL DIAGNOSIS.** (5)
This course will provide students with a structured experience in the principles and techniques of physical diagnosis and history taking. Lecture, one hour per week for two semesters; laboratory, three hours per week for two semesters. Prereq: Admission to second year, College of Medicine or consent of instructor and dean.

**MED 825 SECOND-YEAR ELECTIVE, MEDICINE.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**MED 831 MEDICAL CLERKSHIP.** (10)
Students participate in the diagnosis and care of hospitalized patients. The clerks are assigned to a team of house officers. Together they make work rounds and attend the same seminars and conferences. The faculty conducts conferences for students, emphasizing basic medical information. Clerks are assigned to all patients admitted to medical service, assuring exposure to a wide variety of acute and chronic illness. Usually students are able to assist in the patient's management throughout the entire hospital course. Responsibility is increased as clinical experience is gained. Prereq: Admission to third year in College of Medicine.

**MED 835 THIRD-YEAR ELECTIVE, MEDICINE.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**MED 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**MED 850 CLINICAL ENDOCRINOLOGY AND METABOLISM, ADULT**
**MED 851 GASTROINTESTINAL DISEASE, UK AND VAH**
**MED 852 DERMATOLOGY—SECTION 1**
**MED 853 DERMATOLOGY—SECTION 2**
**MED 854 DERMATOLOGY—SECTION 3**
**MED 855 DERMATOLOGY—SECTION 4**
**MED 856 NEPHROLOGY, BONE AND MINERAL METABOLISM**
**MED 857 PULMONARY MEDICINE**
**MED 858 CARDIOLOGY—UK**
**MED 860 INFECTIOUS DISEASES**
**MED 862 CARDIOLOGY—VAH**
**MED 863 RESEARCH IN MEDICINE**
**MED 870 ACTING INTERNSHIP IN MEDICINE**
**MED 871 CLINICAL CLERKSHIP IN MEDICINE**
**MED 872 FOURTH YEAR REMEDIAL CLINICAL CLERKSHIP**
**MED 873 MEDICAL SPECIALTIES AND GENERAL MEDICINE CLINICS**
**MED 874 STUDENT HEALTH SERVICE**
**MED 875 EXTERNSHIPS IN INTERNAL MEDICINE**
**MED 876 HEMATOLOGY—ONCOLOGY, UK**
**MED 877 HEMATOLOGY—ONCOLOGY, VAH**
**MED 879 GENERAL MEDICAL CONSULTING SERVICE**
**MED 880 GERIATRIC MEDICINE**
**MED 881 ALLERGY-MEDICINE**
**MED 890 INTERNAL MEDICINE OFF-SITE**

## MI Microbiology and Immunology

**MI 494G IMMUNOBIOLOGY.** (3)
A survey of theories and mechanisms of immunity, including: nature of antigens and antibodies, antigen-antibody reactions, immunocompetent cells, immunogenetics, allergic reactions, tumor immunology and transplantation immunology. Prereq: BCH 401G (may be taken concurrently) and BIO 108 or BIO 276, or BIO 476G, or consent of instructor. (Same as BIO 494G.)

**MI 585 PATHOGENIC MICROBIOLOGY.** (3)
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Prereq: BIO 208 or 276 or 476G, and CHE 107. (Same as BIO 585.)

**MI 586 LABORATORY IN PATHOGENIC MICROBIOLOGY.** (2)
Laboratory studies on human and animal pathogenic bacteria, especially their morphological, cultural, and pathogenic properties. Laboratory, four hours per week. Prereq or concur: BIO 585. (Same as BIO 586.)

***MI 590 CELLULAR AND MOLECULAR PHYSIOLOGY.** (4)
An intensive study of general physiological principles with emphasis on the cellular and molecular basis of physiological function. Prereq: Any physics course, general chemistry; PGY 502 or equivalent. (Same as PGY 590.)

**MI 595 IMMUNOBIOLOGY LABORATORY.** (2)
Laboratory in immunology and serology. Preparation, standardization, and uses of biological products; serology. Laboratory; four hours. Prereq: BIO/MI 494G or concurrently; or consent of instructor. (Same as BIO 595.)

***MI 598 CLINICAL MICROBIOLOGY.** (3)
An introduction to the concepts of clinical microbiology through a survey of the microbial diseases of man using an organ system approach. Prereq: BIO 208 and 209, BIO 476G recommended, CHE 230 or 236, or consent of instructor. (Same as PAT 598.)

**MI 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS.** (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BCH/BIO/PPA 601.)

**MI 611 BIOPATHOLOGY.** (3)
The course will examine the mechanisms by which various biological, chemical and physical agents injure susceptible hosts and the complex biochemical and immunological reactions which occur in response to injury. The host defense mechanisms will be illustrated by an analysis of selected human diseases and animal model systems with particular emphasis on the events at the molecular and cellular level. Prereq: BCH 502 or concurrent, BIO/MI 494G or equivalents and consent of instructor. (Same as BIO 611.)

**MI 615 MOLECULAR BIOLOGY.** (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: A course in genetics (e.g. BIO 404G) and a course in nucleic acids and elementary molecular biology (e.g. BCH 502) or consent of instructor. (Same as BCH/BIO 615.)

***MI 618 MOLECULAR NEUROBIOLOGY.** (4)
This course provides knowledge base and analytical skills in the field of molecular neurobiology. An in-depth introduction to current technologies, their rationale and limitations, will be the focus to address normal brain function and neuropathological conditions. Prereq: BCH 501, 502, NEU 605, or consent of instructor. (Same as ANA/BIO/PGY 618.)

**MI 685 ADVANCED IMMUNOBIOLOGY.** (4)
An introductory level graduate course surveying current trends in immunology including the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics and immunopathology. Prereq: BCH 401G, or BCH 501 or 502 or equivalent, or consent of instructor. (Same as BIO 685.)

**MI 707 CONTEMPORARY TOPICS IN IMMUNOLOGY.** (2)
This course will deal with controversial and evolving areas of immunology. Lectures in a given topic will be accompanied by student discussion of contemporary literature. Prereq: MI 685 or equivalent or consent of instructor. (Same as BIO 707.)

**MI 710 SPECIAL TOPICS IN MICROBIOLOGY.** (2)
A variety of topics relating to modern molecular and cell biology. Prereq: Consent of instructor.

**MI 720 MICROBIAL STRUCTURE AND FUNCTION.** (4)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as BIO 720 and OBI 720).

**MI 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**MI 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams. (Same as MB 749.)

**MI 768 RESIDENCE CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours. (Same as MB 768.)

**MI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (1-12)
May be repeated indefinitely. (Same as MB 769.)

**MI 772 SEMINAR IN MICROBIOLOGY.** (0-1)
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national and international scientific and professional societies and symposia. Required of all graduate students. Two hours per week. May be repeated nine times for a maximum of 10 credits. (Same as BIO 772.)

**MI 798 RESEARCH IN MICROBIOLOGY.** (1-9)
May be repeated to a maximum of 24 credits. Prereq: Consent of instructor. (Same as BIO 798.)

**MI 811 IMMUNOLOGY FOR MEDICAL STUDENTS.** (3)
An introduction to the basic principles of immunobiology, immunochemistry, and clinical immunology. Prereq: Admission to the College of Medicine.

**MI 812 GENETICS FOR MEDICAL STUDENTS.** (2)
Introduction to the basic principles of gene transmission, molecular genetics, and cytology as related to human genetics. Prereq: Admission to the College of Medicine.

**MI 815 FIRST-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Medical Microbiology and Immunology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**MI 821 MECHANISMS OF MICROBIAL PATHOGENICITY FOR MEDICAL STUDENTS.** (5)
A course in microbial pathogenicity designed to provide the medical student with an understanding of the structure, function, genetics, control mechanisms, and mechanism of pathogenicity in relation to disease of various microorganisms. Prereq: Admission to second year, College of Medicine.

**MI 825 SECOND-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Medical Microbiology and Immunology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**MI 835 THIRD-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of the faculty adviser. Prereq: Admission to the third year, College of Medicine.

**MI 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

## NEU Neurology

***NEU 605 PRINCIPLES OF NEUROBIOLOGY.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of neurobiology. Areas covered will include neuronal and glial cell biology, neurotransmitters, signaling mechanisms, neuroanatomy, and neuronal development. The course is designed to provide a brief overview of each of the areas and introduce students to current research questions. The course will consist of lectures and informal presentations in a 'Journal Club' format. The course will be interdisciplinary and will be of interest to graduate students in anatomy, biology, biochemistry, immunology, pharmacy, pharmacology, physiology, psychology and toxicology and to neurology and neurosurgery residents. Prereq: Introductory biochemistry course, or equivalent, and/or consent of instructor. (Same as ANA/BCH/PGY/PHA 605.)

**#NEU 606 MECHANISMS OF NEUROLOGIC DISEASE.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of current problems and controversies in neurobiology and clinical neurology. The course will cover a variety of illnesses including epilepsy, neurodegenerative diseases, stroke, psychiatric illness, pain, diseases of immune origin, motor dysfunction and inherited disorders. Prereq: ANA/BCH/NEU/PGY/PHA 605 or consent of instructor. (Same as ANA/PHA 606.)

**NEU 815 FIRST-YEAR ELECTIVE, NEUROLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Neurology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**NEU 821 BASIC NEUROSCIENCES.** (3)
The course is designed to acquaint students with major forms and manifestations of diseases of the nervous system and an introduction to the techniques of their diagnosis; to express the changing functions of the nervous system which attend its growth, maturation and senescence; and to make all aware of the effects of chronic neurological disorders on patients, their families and their communities. Prereq: Admission to second year, College of Medicine.

**NEU 825 SECOND-YEAR ELECTIVE, NEUROLOGY.** (1-4)
With the advice and approval of his or her adviser, the second-year student may choose approved electives offered by the Department of Neurology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**NEU 835 THIRD-YEAR ELECTIVE, NEUROLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**NEU 841 NEUROLOGY FOURTH YEAR CLERKSHIP.** (4)
Under direct supervision of the faculty of the Department of Neurology, students will be assigned to the Neurology service and participate firsthand in obtaining and recording histories and physical examinations of adults and children with acute and chronic neurological disorders. Emphasis will be placed on refinement of skills in performing the neurological examination and use of deductive logical reasoning using the clinical method to formulate an anatomic and pathophysiologic diagnosis. Students will become familiar with special neurodiagnostic tests that are adjuncts to the clinical evaluations. Students will learn the neuropharmacologic and neurosurgical interventions and the psychosocial support systems involved in treating the common acute and chronic neurological disorders; seizure disorders, infections of the nervous system, stroke, dementia; head and spine trauma, tumors of the central nervous system, depressed level of consciousness, headache, dizziness and back pain. Taught for four weeks. Prereq: Admission to the fourth year, and/or permission of the Student Progress and Promotion Committee of the College of Medicine.

**NEU 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth-year College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**NEU 850 ACTING INTERNSHIP IN NEUROLOGY**
**NEU 851 CLINICAL CLERKSHIP IN NEUROLOGY**
**NEU 852 RESEARCH IN NEUROLOGY**
**NEU 853 NEUROLOGY CONSULTATION**
**NEU 854 CLINICAL NEUROPHYSIOLOGY (EEG, EMG, AND EVOKED POTENTIALS)**
**NEU 855 ROTATION IN GERIATRIC NEUROLOGY**

## OBG Obstetrics and Gynecology

**OBG 815 FIRST-YEAR ELECTIVE, OBSTETRICS AND GYNECOLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Obstetrics and Gynecology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**OBG 825 SECOND-YEAR ELECTIVE, OBSTETRICS AND GYNECOLOGY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Obstetrics and Gynecology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**OBG 831 OBSTETRICS AND GYNECOLOGY CLERKSHIP.** (6)
During this clerkship, the student is expected to become knowledgeable concerning the physiology of reproduction and pathologic processes which may adversely affect the reproductive process. This is accomplished by intensive participation in the care of both outpatient and hospitalized patients on the obstetric and gynecologic services. The student is given the opportunity to examine and evaluate all patients admitted to the hospital as a member of the patient care team. During this period of time, concepts are developed and elaborated by means of conferences, seminars, and bedside teaching. Prereq: Admission to the third year, College of Medicine.

**OBG 835 THIRD-YEAR ELECTIVE, OBSTETRICS AND GYNECOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**OBG 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth-year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**OBG 850 GYNECOLOGIC ONCOLOGY**
**OBG 851 OBSTETRICS AND GYNECOLOGY PRECEPTORSHIP**
**OBG 852 OBSTETRICS AND GYNECOLOGY INDEPENDENT STUDY**
**OBG 854 CLINICAL CLERKSHIP IN OBSTETRICS**
**OBG 861 OUTPATIENT OBSTETRICS AND GYNECOLOGY**
**OBG 862 ACTING INTERNSHIP IN REPRODUCTIVE ENDOCRINOLOGY**
**OBG 863 MATERNAL-FETAL MEDICINE**
**OBG 890 OFF-SITE OBSTETRICS AND GYNECOLOGY**

## OPH Ophthalmology

**OPH 815 FIRST-YEAR ELECTIVE, OPHTHALMOLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Ophthalmology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**OPH 825 SECOND-YEAR ELECTIVE, OPHTHALMOLOGY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Ophthalmology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**OPH 835 THIRD-YEAR ELECTIVE, OPHTHALMOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**OPH 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**OPH 850 CLINICAL CLERKSHIP IN OPHTHALMOLOGY**
**OPH 852 ADVANCED CLINICAL CLERKSHIP IN OPHTHALMOLOGY**
**OPH 890 OPHTHALMOLOGY OFF-SITE**

## PAT Pathology

***PAT 598 CLINICAL MICROBIOLOGY.** (3)
An introduction to the concepts of clinical microbiology through a survey of the microbial diseases of man using an organ system approach. Prereq: BIO 208 and 209, BIO 476G recommended, CHE 230 or 236, or consent of instructor. (Same as MI 598.)

**PAT 660 CLINICAL TOXICOLOGY AND DRUG MONITORING.** (3)
A lecture and demonstration course designed to acquaint the student with the two main areas of clinical toxicology. The first part of the course will cover the scope of the drug abuse problem in the U.S.A. and detail the emerging role of the clinical toxicologist in dealing with a wide variety of analytical and medicolegal problems associated with illicit drug detection. The second part of the course will cover the rapidly expanding area of clinical toxicology which deals with the monitoring of therapeutic drugs as they relate to the appropriate clinical management of patients. Prereq: BCH 501 and 502, PHA 521 and 522 or equivalent with consent of instructor. (Same as TOX 660.)

**PAT 821 PATHOLOGIC BASIS OF DISEASE.** (10)
This course is designed to provide the student with an understanding of the basic principles and mechanisms of tissue and bodily reactions to injury, and the morphologic expressions of these reactions. In addition to attending lectures, students, in small groups, meet regularly with instructors for informal instruction and review of gross and histologic materials. Extensive use is made of independent study resources, including subject-oriented slide/tape programs, self-instructional case studies, and clinically-oriented histopathology problems. There are lectures in anatomic pathology given by members of the Department of Pathology, clinical correlative lectures given by members of clinical departments, and lectures in laboratory medicine. Prereq: Admission to second year, College of Medicine.

**PAT 835 THIRD-YEAR ELECTIVE, PATHOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**PAT 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**PAT 850 AUTOPSY PATHOLOGY**
**PAT 851 SURGICAL PATHOLOGY**
**PAT 852 LABORATORY MEDICINE**
**PAT 853 NEUROPATHOLOGY**
**PAT 854 LABORATORY MEDICINE-REGIONAL BLOOD CENTER SERVICES**
**PAT 855 RESEARCH IN PATHOLOGY**
**PAT 856 FORENSIC PATHOLOGY**

## PED Pediatrics

**PED 815 FIRST-YEAR ELECTIVE, PEDIATRICS.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Pediatrics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**PED 825 SECOND-YEAR ELECTIVE, PEDIATRICS.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Pediatrics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**PED 831 CHILDREN'S CLERKSHIP.** (6)
This basic clerkship is designed to give the student experience in the diagnosis and management of diseases in children, training in preventive pediatrics, and study of normal growth and development. The time is divided between the inpatient hospital wards, and outpatient clinics. Patients are assigned for diagnosis, suggested management, and study. Three to four patients are assigned each student on starting an inpatient rotation and then two to three new patients per week. An average of four new patients per week are investigated while on the outpatient service, and a number of other outpatients are assigned for continuing care. A large active walk-in clinic provides ample experience in acute medical conditions. The entire pediatric house staff and faculty are available at all times for consultations. Students participate in rounds, seminars, and conferences that emphasize general concepts as well as specific medical information. Prereq: Admission to third year, College of Medicine.

**PED 835 THIRD-YEAR ELECTIVE, PEDIATRICS.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**PED 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**PED 850 NEONATAL INTENSIVE CARE**
**PED 852 PEDIATRIC RENAL-IMMUNOLOGY**
**PED 853 INFECTIOUS DISEASE**
**PED 859 ACTING INTERNSHIP IN PEDIATRICS—UK**
**PED 868 AMBULATORY PEDIATRICS**
**PED 869 PEDIATRIC ALLERGY AND CLINICAL IMMUNOLOGY**
**PED 870 PEDIATRIC CARDIOLOGY**
**PED 871 GENETICS/ENDOCRINOLOGY/METABOLISM**
**PED 875 RESEARCH IN PEDIATRICS**
**PED 876 DYSMORPHOLOGY/GENETICS**
**#PED 877 PEDIATRIC DEVELOPMENTAL DISABILITIES**
**#PED 878 PEDIATRIC INTENSIVE CARE**
**PED 890 COMMUNITY PEDIATRICS**

## PGY Physiology

**PGY 206 ELEMENTARY PHYSIOLOGY.** (3)
An introductory survey course in basic human physiology. Prereq: One semester of college biology.

**PGY 412G PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES.** (4)
Intermediate level human physiology course emphasizing applied concepts. Prereq: One year of college chemistry, one year of biology or PGY 206.

***PGY 502 PRINCIPLES OF SYSTEMS, CELLULAR AND MOLECULAR PHYSIOLOGY.** (5)
Advanced survey of major mammalian physiological systems at the systems, cellular and molecular level; lectures, assigned reading, advanced texts or monographs, demonstrations and problem oriented study questions. Prereq: One year each, physics, general chemistry; PGY 206 or its equivalent. (Same as BIO 502.)

**PGY 504 INDEPENDENT WORK IN PHYSIOLOGY.** (2-4)
A study of some advanced problems in physiology under the direct supervision of the instructor. Discussion period, one hour; laboratory, four hours. May be repeated to a maximum of eight credits. Prereq: Consent of instructor.

**PGY 522 QUANTITATIVE PHYSIOLOGY.** (4)
Presents principles of biophysics applicable to physiological systems. Mechanical and electrochemical systems are discussed and compared. Applications to neurophysiology, respiratory, cardiovascular, renal and endocrine physiology are given.

**PGY 535 COMPARATIVE NEUROBIOLOGY AND BEHAVIOR.** (3)
The course consists of an introduction to neurophysiology and study of the neural basis of sensory processing and motor patterns. A comparative analysis of the neurobiological basis of behavioral responses will be made, utilizing a broad range of vertebrates and invertebrates. Prereq: BIO 350 or consent of instructor. (Same as BIO 535.)

**PGY 549 COMPARATIVE ENDOCRINOLOGY.** (3)
An introductory and comparative survey of invertebrate and vertebrate endocrine organs and neuroendocrine mechanisms with emphasis on the evolution, chemistry, actions and functions of hormones. Prereq: BIO 350 or consent of instructor. (Same as BIO 549.)

**PGY 550 AN INTRODUCTION TO INTEGRATIVE THOUGHT.** (3)
Modern life, with its proliferation of specialized knowledge, offers little opportunity to develop an integrative conception of our personal existence and of the world. One result is the absence of a coherent framework within which to organize experience; another is a loss of meaning. Drawing on science, religion, literature and other sources, this course takes a few steps toward the development of such a framework. The course involves writing, oral presentation, and group discussion. Topics: the nature of living systems, the cell, cosmic evolution, the integrative way, and integrative study. Lecture, four hours per week. Prereq: Three years of undergraduate study or permission of instructor.

**PGY 560 PATHOPHYSIOLOGY: INTEGRATIVE STUDY IN PHYSIOLOGY AND MEDICINE.** (1)
This course aims at the development of an integrative conception of the human organism, and involves the study of medical case histories. The complex network of physiologic interactions which underlie disease states is investigated. The physiologic bases of health, illness, dying, and death are explored. May be repeated to a maximum of three credits. Prereq: PGY 412G or PGY 502 or PGY 611 or consent of instructor.

***PGY 590 CELLULAR AND MOLECULAR PHYSIOLOGY.** (4)
An intensive study of general physiological principles with emphasis on the cellular and molecular basis of physiological function. Prereq: Any physics course, general chemistry; PGY 502 or equivalent. (Same as MI 590.)

**PGY 601 MAMMALIAN ENDOCRINOLOGY.** (3)
An introduction to the basic anatomy, physiology and biochemistry of endocrine systems with emphasis on mechanisms of hormone synthesis, secretion and action. Lectures and reading assignments will focus on endocrine function in mammalian species, including laboratory animals, humans and livestock. Prereq: BCH 401G and BIO 350 or equivalents. (Same as ASC 601.)

**#PGY 602 READINGS IN SYSTEMS, CELLULAR AND MOLECULAR PHYSIOLOGY.** (3)
A critical evaluation at the advanced level of the literature of the major mammalian physiological systems at the organ, cellular and molecular level. The course is intended to be taken with and to complement PGY 502. It includes a critical reading of the primary literature. Prereq: One year each of physics, general chemistry; PGY 206 or equivalent.

**PGY 604 ADVANCED CARDIOVASCULAR PHYSIOLOGY.** (3)
The objective of this course is to examine in-depth the various functions of the cardiovascular system and their proposed mechanisms. Prereq: PGY 502, or PGY 511 or consent of instructor.

***PGY 605 PRINCIPLES OF NEUROBIOLOGY.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of neurobiology. Areas covered will include neuronal and glial cell biology, neurotransmitters, signaling mechanisms, neuroanatomy, and neuronal development. The course is designed to provide a brief overview of each of the areas and introduce students to current research questions. The course will consist of lectures and informal presentations in a 'Journal Club' format. The course will be interdisciplinary and will be of interest to graduate students in anatomy, biology, biochemistry, immunology, pharmacy, pharmacology, physiology, psychology and toxicology and to neurology and neurosurgery residents. Prereq: Introductory biochemistry course, or equivalent, and/or consent of instructor. (Same as ANA/BCH/NEU/PHA 605.)

**PGY 606 ADVANCED NEUROPHYSIOLOGY.** (3)
Electrical analysis of nerve fibers and synapse; nerve impulse theories, reflexes, metabolism and central nervous function are considered from the cybernetic viewpoint. Prereq: PGY 512, 513; consent of instructor.

**PGY 607 HORMONAL CONTROL MECHANISMS (Subtitle required).** (3)
Advanced study of the role of hormones in the physiologic regulation of vertebrate organ systems. One or two specific areas of endocrinology will be selected by the instructor. Emphasis will be placed on critical analysis and discussion of the experimental basis for current theories of the mechanisms whereby hormones modulate physiologic processes. Readings will be taken from the literature. May be repeated to a maximum of six credits. Prereq: PGY 502 or PGY 811 or PGY 549 or their equivalent.

**PGY 608 ADVANCED RENAL PHYSIOLOGY.** (3)
This course will examine in-depth the physiology and pathophysiology of the renal system, as well as provide an understanding of advanced renal physiological techniques. Prereq: PGY 412G, PGY 502, PGY 611 or consent of instructor.

**PGY 609 ADVANCED RESPIRATORY PHYSIOLOGY.** (3)
This course will examine in-depth the physiology and pathophysiology of the respiratory system. Prereq: PGY 412G, PGY 502, PGY 611 or consent of instructor.

**PGY 610 EXPERIMENTAL PHYSIOLOGY.** (4)
This course will introduce students to the nature of physiological experimentation, and provide an opportunity to gain first-hand experience in conducting experiments which illustrate fundamental physiological concepts. Laboratory, eight hours per week. Prereq: PGY 611, PGY 502 or consent of instructor.

**PGY 611 ADVANCED MEDICAL PHYSIOLOGY.** (9)
Advanced study of major mammalian physiological systems with particular emphasis on human (medical) physiology. A core content of lectures, assigned readings and laboratories will be supplemented with in-depth discussion group sessions of contemporary topics in physiology using advanced texts and readings in the original literature. Lecture, nine hours; laboratory, four hours per week. Prereq: Enrollment in physiology graduate program or consent of DGS.

***PGY 618 MOLECULAR NEUROBIOLOGY.** (4)
This course provides knowledge base and analytical skills in the field of molecular neurobiology. An in-depth introduction to current technologies, their rationale and limitations, will be the focus to address normal brain function and neuropathological conditions. Prereq: BCH 501, 502, NEU 605, or consent of instructor. (Same as ANA/BIO/MI 618.)

**PGY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY.** (3)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate standing or consent of instructor. (Same as PSY 627.)

**PGY 630 ADVANCED TOPICS IN PHYSIOLOGY AND BIOPHYSICS.** (1-3)
Contemporary topics in physiology and biophysics. Course designed to utilize the special research interests of resident and visiting faculty. May be repeated to a maximum of six credits. Prereq: PGY 502 or 511 or consent of instructor.

**PGY 638 DEVELOPMENTAL NEUROBIOLOGY.** (3)
An explanation of the processes which contribute to the development of the nervous system. Neurophysiological, cell biological and molecular approaches to cell differentiation, neuronal pathfinding and synapse formation and stabilization will be explored and discussed. Examples will be drawn from both vertebrate and invertebrate preparations. Prereq: BIO 535 or consent of instructor. (Same as ANA/BIO/PSY 638.)

**PGY 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PGY 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

***PGY 767 TOPICAL SEMINAR IN BEHAVIORAL NEUROSCIENCE.** (3)
A study of selected topics in behavioral neuroscience with emphasis on recent research and theory. May be repeated to a maximum of nine credits. Prereq: Consent of instructor. This course may be elected to fulfill requirements in the psychology and physiology graduate programs. (Same as PSY 767.)

**PGY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PGY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PGY 771 PROSEMINAR IN CELL PHYSIOLOGY AND BIOPHYSICS.** (2)
A comprehensive discussion of topics in cellular physiology and biophysics using advanced texts and readings in the original literature. Includes such topics as biological membranes, transport mechanisms, effects of hormones on membranes. Prereq: Graduate student in physiology and biophysics or consent of Director of Graduate Study.

**PGY 774 GRADUATE SEMINAR IN PHYSIOLOGY.** (1)

**PGY 791 RESEARCH IN PHYSIOLOGY.** (1-15)
May be repeated to a maximum of 15 credits. Prereq: Consent of instructor.

**PGY 811 MEDICAL PHYSIOLOGY.** (7)
Instruction in medical physiology provides advanced work in mammalian physiology approached from a biophysical point of view. Course organization includes lectures, assigned reading, problem-oriented study questions, laboratory work, demonstrations, group discussions and clinical correlation activities. Prereq: Admission to College of Medicine or enrollment in the physiology and biophysics graduate programs.

**PGY 815 FIRST-YEAR ELECTIVE, PHYSIOLOGY AND BIOPHYSICS.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Physiology and Biophysics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**PGY 825 SECOND-YEAR ELECTIVE, PHYSIOLOGY AND BIOPHYSICS.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Physiology and Biophysics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**PGY 835 THIRD-YEAR ELECTIVE, PHYSIOLOGY AND BIOPHYSICS.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**PGY 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved elective:**

**PGY 850 RESEARCH IN PHYSIOLOGY**

## PHA Pharmacology

**PHA 522 SYSTEMS PHARMACOLOGY.** (3)
This course is aimed to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: PHA 521; consent of instructor.

**PHA 602 NEUROPHARMACOLOGY.** (4)
A study of drugs which modify the function of all parts of the nervous system, including the brain, spinal cord, nerve fibers, the pituitary gland and endocrines as well as an introduction to receptor theory and principles of general pharmacology. Lecture, 77 hours; demonstration, four hours. Prereq: BCH 501 and 502, and PGY 502 and/or consent of faculty.

**PHA 603 PHARMACOLOGY OF ORGANS AND SYSTEMS.** (3)
Discussion of the pharmacodynamic principles underlying the action of cardiovascular, renal, gastrointestinal, and hematologic drugs, as well as drugs used in the treatment of infections. In addition, cancer chemotherapeutic drugs, drugs for treating artherosclerosis, principles of toxicology and drug metabolism and kinetics are discussed. Lecture, 43 hours. Prereq: BCH 501 and 502, PGY 502, PHA 602 and/or consent of faculty.

***PHA 605 PRINCIPLES OF NEUROBIOLOGY.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of neurobiology. Areas covered will include neuronal and glial cell biology, neurotransmitters, signaling mechanisms, neuroanatomy, and neuronal development. The course is designed to provide a brief overview of each of the areas and introduce students to current research questions. The course will consist of lectures and informal presentations in a 'Journal Club' format. The course will be interdisciplinary and will be of interest to graduate students in anatomy, biology, biochemistry, immunology, pharmacy, pharmacology, physiology, psychology and toxicology and to neurology and neurosurgery residents. Prereq: Introductory biochemistry course, or equivalent, and/or consent of instructor. (Same as ANA/BCH/NEU/PGY 605.)

**#PHA 606 MECHANISMS OF NEUROLOGIC DISEASE.** (4)
The objective of this course is to provide graduate students of diverse backgrounds with an introduction and overview of current problems and controversies in neurobiology and clinical neurology. The course will cover a variety of illnesses including epilepsy, neurodegenerative diseases, stroke, psychiatric illness, pain, diseases of immune origin, motor dysfunction and inherited disorders. Prereq: ANA/BCH/NEU/PGY/PHA 605 or consent of instructor. (Same as ANA/NEU 606.)

**PHA 612 QUANTITATIVE PHARMACODYNAMICS: PHARMACOKINETICS.** (3)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of both mathematical models and model-independent approaches for describing these processes. Prereq: PHR 802 (or equivalent), MA 114 and consent of instructor. (Same as PHR 612.)

**PHA 621 ADVANCED PHARMACODYNAMICS.** (3)
Small group discussion course for students of the natural sciences who, using drugs as research tools, wish to understand the basis of drug therapy. The principles and mechanism of drug action on biochemical and physiological systems is emphasized. Prereq: Consent of instructor.

**PHA 630 SPECIAL TOPICS IN PHARMACOLOGY.** (1-3)
Detailed examination of current, significant topics in pharmacology such as: contemporary neuroscience methodology, molecular and cellular pharmacodynamics, transmembrane signaling. Course is designed to offer flexibility to students in different tracks, different emphasis in a given year and to utilize the special research interests in resident and visiting investigators. May be repeated to a maximum of six credits. Prereq: Consent of course director.

**PHA 634 PHARMACOLOGY OF CARDIOVASCULAR DRUG THERAPY.** (3)
A discussion of the mechanism of action, dosing theory, toxicity and metabolism of drugs used as therapeutic agents in the treatment of cardiovascular disease. Prereq: Consent of instructor.

**PHA 649 MOLECULAR PHARMACOLOGY.** (3)
The intent of this course is to describe the molecular aspects of a variety of physiological systems that are subject to pharmacological manipulation. Emphasis will be on the molecular genetics, biochemistry, and subcellular organization and biology of these systems, and on the pharmacological techniques used to study these systems. Genetic diseases associated with these systems will also be described. The course will focus on areas of research which represent the forefront of modern pharmacological investigation. Prereq: PHA 522, PGY 502, BCH 501, 502, or consent of instructor. (Same as PHR/TOX 649.)

**PHA 658 ADVANCED NEUROPHARMACOLOGY.** (3)
A study of the general theories of the mode of action of drugs upon nervous tissue and a review of the effects of analgesics, sedatives, hypnotics, anesthetics, tranquilizers, psychotomimetics, analeptics, antidepressants, anti-convulsants and drugs affecting motor dyskinesias upon neurones, synapses and functional components of the central nervous system. Prereq: PGY 412G or equivalent and PHA 522 or equivalent; consent of instructor.

***PHA 663 DRUG METABOLISM AND DISPOSITION.** (2)
Drug metabolism and disposition. Lectures and discussion of the chemistry and biochemistry of drug biotransformation with emphasis on the mixed-function oxidase system. Prereq: BCH 401G or 501, 502 or consent of instructor. (Same as TOX 663.)

**PHA 670 CHEMICAL CARCINOGENESIS.** (3)
Lectures and discussion of the chemical and biochemical reactions of chemical carcinogens and their metabolites. Prereq: CHE 232; PHR 400; or BCH 501, 502. (Same as TOX 670.)

**PHA 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PHA 749 DISSERTATION RESEARCH.** (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

**PHA 750 RESEARCH IN PHARMACOLOGY.** (1-5)
May be repeated to a maximum of 15 credits.

**PHA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of 12 hours.

**PHA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.** (0-12)
May be repeated indefinitely.

**PHA 770 SEMINAR IN PHARMACOLOGY.** (1)
May be repeated indefinitely.

**PHA 779 MEMBRANE SCIENCES COLLOQUIUM.** (1)
Outstanding membrane scientists present their current research on biological and/or synthetic membranes. Students read a pertinent paper by the speaker prior to his/her talk and write a short paper on the talk; especially important is relevance of the main points of the talk to membrane science in general and the student's own research in particular. May be repeated to a maximum of six credits. (Same as BCH/CHE/CME/PHR 779.)

**PHA 815 FIRST-YEAR ELECTIVE, PHARMACOLOGY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Pharmacology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**PHA 821 MEDICAL PHARMACOLOGY I.** (7)
This course aims to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: Admission to second-year medical curriculum.

**PHA 825 SECOND-YEAR ELECTIVE, PHARMACOLOGY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Pharmacology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**PHA 835 THIRD-YEAR ELECTIVE, PHARMACOLOGY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**PHA 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

## PM Preventive Medicine and Environmental Health

**PM 521 EPIDEMIOLOGY.** (4)
Initial graduate level course in the principles of epidemiology and its uses and applications in preventive medicine and public health. Lecture, three hours; laboratory, two hours per week. Prereq: Graduate students in Public Health and Nursing students in the Community Health Management component graduate program and consent of instructor.

**PM 601 ENVIRONMENTAL AND OCCUPATIONAL HEALTH.** (4)
An overview of occupational and environmental health problems, toxicology related to the work place and other environments, industrial hygiene, safety, and other topics relevant to environmental health. Lecture, three hours; laboratory, two hours per week. Prereq: PHA 603 and PGY 502 or equivalents, or consent of instructor.

**PM 602 OCCUPATIONAL AND ENVIRONMENTAL HEALTH.** (4)
A continuation of topics in PM 601. Lecture, three hours; laboratory, two hours per week. Prereq: PM 601 or consent of instructor.

**PM 621 TOPICS IN ADVANCED EPIDEMIOLOGY.** (2)
This course provides specialized epidemiologic content and method designed to meet the research and practice needs of health professionals. A series of topic-driven lectures and discussions will focus on the role of epidemiology in the prevention of disease and injury. Prereq: PM 521 or permission of instructor.

**PM 651 WORK PLACE VENTILATION.** (3)
This course will cover ventilation fundamentals for control of the work environment. Principles of airflow, fans, blowers, and basic hood design will be covered. Airflow measurements and ventilation will be discussed. Laboratory experience and field studies will be utilized as part of the teaching approach. Lecture, two hours; laboratory, two hours per week. Prereq: PM 661 or consent of instructor.

**PM 661 INDUSTRIAL HYGIENE SAMPLING.** (3)
This course, using lectures and laboratory exercises, will cover sampling and analysis techniques for industrial hygiene assessment and monitoring. The laboratory experiments are intended to simulate typical industrial hygiene measurement situations and to provide a basis for selection of sampling techniques and critical evaluation of laboratory results. Lecture, two hours; laboratory, two hours per week. Prereq: Consent of the instructor.

**PM 662 PUBLIC HEALTH PRACTICE AND ADMINISTRATION.** (3)
This course is to be a practical application of the principles of health care organization to public health at the national, state, and local levels. Prereq: Health care organization course.

**PM 748 MASTER'S THESIS RESEARCH.** (0)
Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

**PM 768 RESIDENCY CREDIT FOR MASTER'S DEGREE.** (1-6)
May be repeated to a maximum of six credits.

**PM 770 SEMINAR IN PREVENTIVE MEDICINE AND PUBLIC HEALTH.** (1-3)
A special seminar focusing each semester on an important topic, such as health problems of special working groups, cancer control, and health policy issues. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PM 780 SPECIAL PROBLEMS IN PREVENTIVE MEDICINE AND PUBLIC HEALTH.** (1-3)
Organized study or tutorial focused on special problems or issues. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PM 790 RESEARCH IN PREVENTIVE MEDICINE AND PUBLIC HEALTH.** (1-3)
Individually directed research under the supervision of one or more faculty members. Laboratory, two to six hours per week. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

**PM 815 FIRST-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Preventive Medicine and Environmental Health. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**PM 821 PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.** (2)
The major purpose of this course is to acquaint medical students with the population dimension of preventive medicine. The student, via lectures, seminar groups, demonstrations, and laboratory exercises will learn about the basic tools of preventive medicine; namely, epidemiology and biostatistics. Students will learn how to systematically approach the scientific literature. Principles of preventive medicine will be taught and will include, but not be limited to, clinical prevention, nutrition, occupational medicine, community assessment, and health care organization and financing. Prereq: Admission to the College of Medicine.

**PM 825 SECOND-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Preventive Medicine and Environmental Health. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**PM 835 THIRD-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty adviser. Prereq: Admission to the third year, College of Medicine.

**PM 841 PREVENTIVE MEDICINE CLERKSHIP SELECTIVE.** (1-6)
The medical student working singly or in small groups will, with Preventive Medicine faculty assistance, identify a question in the broadest sense in "medicine" which can best be answered by a population-based study. This could include comparison of therapeutic techniques, status of knowledge by health provider or consumer about certain conditions or costs of care, problems of organizing health services, ethical problems, or any other population-based question amenable to study. Building on the second year experience, the project will involve identification of a question, design and conduct of the study, appropriate analysis of data, and a written and oral presentation. Prereq: Admission to College of Medicine.

**PM 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**PM 850 PREVENTIVE MEDICINE OFF-SITE ELECTIVE.**
**PM 851 CLINICAL CLERKSHIP IN PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.**
**PM 852 RESEARCH IN PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.**

## PSC Psychiatry

**PSC 812 HUMAN GROWTH, DEVELOPMENT AND AGING.** (2)
A consideration of normal changes that occur throughout the human life span, with emphasis on the interface of biological, interpersonal and sociocultural processes and determinants of change, and on providing an understanding and appreciation of the complexity and uniqueness of each human life. Lecture, three hours of week. Prereq: Admission to the College of Medicine.

**PSC 815 FIRST-YEAR ELECTIVE, PSYCHIATRY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Psychiatry. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**PSC 821 PSYCHOPATHOLOGY OF BEHAVIOR.** (3)
Basic clinical psychiatry for medical students. Part of a unit of study and clinical work facilitating the use of psychiatric concepts in medicine and surgery. Course covers psychiatric signs and symptoms, psychiatric syndromes in children and adults, causal factors in mental disturbances, theories of psychiatric treatment; includes research methods, preventive psychiatry, forensic psychiatry, and the applications in medical and surgical practice. Discussions and demonstrations to supplement experience by interviewing and evaluating selected psychiatric patients under supervision. Prereq: Open only to medical students or with consent of instructor.

**PSC 825 SECOND-YEAR ELECTIVE, PSYCHIATRY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Psychiatry. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**PSC 831 PSYCHIATRIC CLERKSHIP.** (6)
Psychiatric diagnosis via patient interviews, appropriate relatives and other methods. Study of total process from admission through treatment to rehabilitation, emphasizing somatic and pharmacological tactics and limits. Students see variety of patients and observe hospitalization impact, treatment resistance by patient or family, readjustment to family, community and referring physician. Evaluation of outpatient psychotherapy. Students assist throughout hospital emergency room and clinic, including crisis intervention. Prereq: Admission to third year, College of Medicine.

**PSC 835 THIRD-YEAR ELECTIVE, PSYCHIATRY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**PSC 841 PSYCHIATRY SELECTIVE.** (4)
Designed to give fourth year med student advanced exposure to principles and practice of psychiatry with close faculty supervision. Formalized seminars. Includes outpatient specialty wards, family counseling, emergency areas, consult psychiatry and geropsychiatry. Advance instruction in psychopharmacology and neurochemistry, straightforward constructs in psychotherapy, couple/family assessment, crisis intervention, etc. Course individualized within department, staffing patterns. Grade determined by supervisor's assessment of knowledge, skills, performance and progress. Four-week rotation. Prereq: PSC 831.

**PSC 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee..

**Approved electives:**

**PSC 865 CLINICAL CLERKSHIP IN PSYCHIATRY**
**PSC 869 RESEARCH IN PSYCHIATRY**
**PSC 872 PRIVATE PRACTICE PSYCHIATRY**
**PSC 875 GERIATRICS/GERIATRIC PSYCHIATRY**
**PSC 876 TRIPLE BOARD ACTING INTERNSHIP**
**PSC 890 OFF-SITE CLERKSHIP IN PSYCHIATRY**

## RBM Physical Medicine and Rehabilitation

**RBM 815 FIRST-YEAR ELECTIVE, REHABILITATION MEDICINE.** (1-3)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

**RBM 825 SECOND-YEAR ELECTIVE, REHABILITATION MEDICINE.** (1-4)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

**RBM 835 THIRD-YEAR ELECTIVE, REHABILITATION MEDICINE.** (1-6)
The student with specific interests in brain injury, stroke or spinal cord injury will be assigned to follow appropriate patients selected from the Rehabilitation Medicine service at Cardinal Hill Hospital. Student will interview, examine and study those cases in-depth to gain an expanded understanding of the selected area. Brief presentation at the end of the rotation.

**RBM 850 ACTING INTERNSHIP IN REHABILITATION MEDICINE.** (1-6)
Acting internship in Rehabilitation Medicine. May be repeated to a maximum of eight credits. Prereq: Medicine and/or surgery clerkship.

## RM Radiation Medicine

**RM 472G INTERACTION OF RADIATION WITH MATTER.** (3)
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as PHY 472G.)

**RM 540 FUNDAMENTALS OF RADIATION BIOLOGY.** (2)
Fundamental aspects of radiation biology. Radiation effects on macromolecules, cells, tissues, organs, and organisms. Prereq: One year of biological sciences, one year of chemistry, one year of physics, and MA 113, or equivalent. (Same as BIO/RAS 540.)

**RM 541 RADIOISOTOPE METHODOLOGY.** (2)
Radioisotope techniques and their application in the biological and medical sciences. Radiation safety, calibration and use of radiation detectors, counting statistics, uptake and assay methods, and applications. Laboratory, five hours per week. Prereq: One year biology, CHE 115, PHY 213, and MA 113, or equivalent. (Same as BIO/RAS 541.)

**RM 545 RADIATION HAZARDS AND PROTECTION.** (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and non-ionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/RAS 545.)

**RM 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS.** (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as PHY/RAS 546.)

**RM 601 ADVANCED RADIATION DOSIMETRY.** (2)
Advanced aspects of the interaction of radiation with matter and specialized topics in the dosimetry of ionizing radiations. Modifications of Bragg-Gray theory for application to megavoltage sources. Beta dosimetry. Specialized calibration techniques. Relative response functions of various media. Nontraditional techniques. Dosimetry of radiation fields including complex spectra. Prereq: PHY 472G, RM 546, or equivalent. (Same as RAS 601.)

**RM 647 PHYSICS OF DIAGNOSTIC IMAGING I.** (3)
Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/RAS 546 or consent of instructor. (Same as RAS 647.)

**RM 648 PHYSICS OF DIAGNOSTIC IMAGING II.** (3)
A continuation of RAS/RM 647. Specialized and advanced topics in nuclear medicine imaging physics, including positron emission tomographic procedures, emerging new modalities, and quality control. Prereq: RM/RAS 647 or consent of instructor. (Same as RAS 648.)

**RM 649 PHYSICS OF RADIATION THERAPY.** (3)
Specialized external beam and brachytherapy treatment planning; advanced Bragg-Gray cavity applications, including Ngas and TG-21; calibration, acceptance testing, and quality control of therapy physics equipment. Prereq: RAS/RM/PHY 546 and RAS/RM 601, or consent of instructor. (Same as RAS 649.)

**RM 652 ADVANCED LABORATORY IN NUCLEAR MEDICAL PHYSICS.** (1-3)
Specialized experiments involving the use, calibration, and quality control of nuclear medicine imaging equipment, including both traditional and emerging modalities. Laboratory, approximately 30 hours per credit. May be repeated to a maximum of three credits. Prereq: RAS/RM 648, or equivalent, plus graduate standing in the radiation science program, or consent of instructor. (Same as RAS 652.)

**RM 660 GRADUATE PRACTICUM IN RADIATION MEDICINE.** (1-6)
Applied field work at the graduate level in the sciences relating to radiation medicine. May be repeated to a maximum of six credits. Prereq: Graduate standing in the bioradiation or medical sciences, plus consent of instructor.

**RM 695 RESEARCH IN THE HEALTH-RELATED RADIATION SCIENCES.** (1-4)
Independent directed research on theoretical and practical problems in the health-related radiation sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing in one of the radiation-related sciences, plus consent of instructor. (Same as RAS 695.)

**RM 740 MAMMALIAN RADIATION BIOLOGY.** (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Consent of instructor; BIO/RM 540 or RM 546 or equivalent background. (Same as BIO 740.)

**RM 815 FIRST-YEAR ELECTIVE, RADIATION MEDICINE.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**RM 821 BASIC RADIATION MEDICINE.** (1)
This course is designed for recognition of various forms of malignancy; use of radiation in treatment of malignant diseases; use of radioactive isotopes in diagnosis and treatment in medicine. Prereq: Admission to the second year, College of Medicine.

**RM 825 SECOND-YEAR ELECTIVE, RADIATION MEDICINE.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**RM 835 THIRD-YEAR ELECTIVE, RADIATION MEDICINE.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty adviser. Prereq: Admission to the third year, College of Medicine.

**RM 842 RADIATION ONCOLOGY.** (1)
Use of radiation therapy in clinical treatment of malignancy. Staging, histology, spread, treatment techniques, acute and late effects of radiation therapy. Prereq: RM 740 and an introductory anatomy course, or equivalent, and consent of instructor.

**RM 848 PRACTICUM IN BRACHYTHERAPY PHYSICS.** (1-3)
This course offers practicum training in the clinical use of therapy physics and health physics in brachytherapy. May be repeated to a maximum of three credits. Laboratory: 40 hours per week. Prereq: RM/HRS 649, or equivalent, and consent of instructional staff.

**RM 849 PRACTICUM IN EXTERNAL BEAM THERAPY PHYSICS.** (1-6)
This course offers practicum training in the professional use of therapy physics in external beam radiation therapy. May be repeated to a maximum of six credits. Laboratory: 40 hours per week. Prereq: RM/HRS 649, or equivalent, and consent of instructor.

**RM 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**RM 850 RADIATION ONCOLOGY**
**RM 852 RESEARCH IN RADIATION MEDICINE**

## SUR Surgery

**SUR 815 FIRST YEAR ELECTIVE, SURGERY.** (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Surgery. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

**SUR 825 SECOND-YEAR ELECTIVE, SURGERY.** (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Surgery. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

**SUR 831 SURGICAL CLERKSHIP.** (10)
A clerkship designed to provide practical experiences and problem oriented approaches to the surgical patient based on principles of general surgery and surgical specialties. Prereq: Admission to third year, College of Medicine.

**SUR 835 THIRD-YEAR ELECTIVE, SURGERY.** (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to the third year, College of Medicine.

**SUR 841 SURGICAL SPECIALTY SELECTIVE.** (1-6)
A clerkship providing lectures and practical experience in two surgical specialties, including but not limited to: cardiothoracic surgery, plastic surgery, neurosurgery, orthopedics, urology, pediatric surgery, and ophthalmology. One credit per week, not to exceed six weeks. Prereq: Admission to the fourth year of the College of Medicine.

**SUR 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS.** (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

**Approved electives:**

**SUR 851 ACTING INTERNSHIP IN ORTHOPEDIC SURGERY**
**SUR 852 ACTING INTERNSHIP IN PEDIATRIC SURGERY**
**SUR 853 ACTING INTERNSHIP IN OTOLARYNGOLOGY-HEAD AND NECK SURGERY**
**SUR 854 ACTING INTERNSHIP IN UROLOGY**
**SUR 855 ACTING INTERNSHIP IN PLASTIC SURGERY**
**SUR 857 ACTING INTERNSHIP IN TRANSPLANTATION SURGERY**
**SUR 862 ACTING INTERNSHIP IN GENERAL SURGERY**
**SUR 863 ACTING INTERNSHIP IN CARDIOTHORACIC SURGERY**
**SUR 864 ACTING INTERNSHIP IN NEUROSURGERY**
***SUR 865 SURGICAL INTENSIVIST**
**SUR 867 ELECTIVE IN MICROSURGERY**
**SUR 868 URBAN GENERAL SURGERY ELECTIVE**
**SUR 869 ACTING INTERNSHIP IN TRAUMA SURGERY**
**SUR 870 ELECTIVE IN HEARING, SPEECH AND LANGUAGE**
**SUR 871 SURGERY ACTING INTERNSHIP**
**SUR 890 SURGERY OFF-SITE**

# FACULTY

## COLLEGE OF AGRICULTURE

C. Oran Little, dean

### AGRICULTURAL COMMUNICATIONS

Carla G. Craycraft, chair

Carla G. Craycraft, extension professor, Ph.D., Oklahoma State, 1981
Logan T. Louderback, extension professor emeritus, Ph.D., North Carolina State, 1970
Randy D. Weckman, assistant professor, Ph.D., Minnesota, 1989
Joe B. Williams, assistant extension professor, Ed.D., Kentucky, 1972
Deborah B. Witham, associate professor, Ph.D., Indiana, 1981

### AGRICULTURAL ECONOMICS

Larry D. Jones, chair

Kurt Ramon Anschel, professor, Ph.D., Michigan State, 1965
Robert Lee Beck, professor emeritus, Ph.D., Michigan State, 1963
Fred J. Benson, extension professor, Ph.D., Missouri, 1972
Barry Wright Bobst, associate professor, Ph.D., Washington State, 1966
Russell Herbert Brannon, professor, Ph.D., Wisconsin, 1967
Wilmer Browning, extension professor emeritus, Ph.D., Kentucky, 1969
James Earnest Criswell, assistant professor emeritus, Ph.D., Minnesota, 1966
Joe Thomas Davis, professor, Ph.D., Tennessee, 1974
David Lee Debertin, professor, Ph.D., Purdue, 1973
David Freshwater, associate professor, Ph.D., Michigan State, 1977
Stephen J. Goetz, associate professor, Ph.D., Michigan State, 1990
Harry Hale Hall, professor, Ph.D., Iowa State, 1969
Woodrow Wilson Hourigan, extension professor emeritus, Ph.D., Kentucky, 1969
Craig Lynn Infanger, extension professor, Ph.D., Washington State, 1974
Stephen G. Isaacs, assistant extension professor, Ph.D., Tennessee, 1992
Larry D. Jones, extension professor, Ph.D., Purdue, 1973
Fred Edward Justus, Jr., professor emeritus, Ph.D., Illinois, 1955
Harold Gibson Love, associate professor emeritus, Ph.D., Missouri, 1969
Mary A. Marchant, assistant professor, Ph.D., California-Davis, 1989
Loys L. Mather, associate professor, Ph.D., Wisconsin, 1968
A. Lee Meyer, extension professor, Ph.D., Purdue, 1979
Angelos Pagoulatos, professor, Ph.D., Iowa State, 1975
Richard C. Ready, assistant professor, Ph.D., Wisconsin, 1988
Michael R. Reed, professor, Ph.D., Iowa State, 1978
Steven K. Riggins, extension professor, Ph.D., Cornell, 1977
Robert William Rudd, professor emeritus, Ph.D., California, 1952
Dallas Milton Shuffett, professor emeritus, Ph.D., Kentucky, 1956
Jerry Robert Skees, professor, Ph.D., Michigan State, 1981
Eldon D. Smith, professor emeritus, Ph.D., Wisconsin, 1954
William M. Snell, associate extension professor, Ph.D., Kentucky, 1989
Richard L. Trimble, associate extension professor, Ph.D., Michigan State, 1973
Lionel Williamson, extension professor, Ph.D., Missouri, 1977

### AGRICULTURAL EDUCATION

Herbert H. Bruce, professor emeritus, Ed.D., Kentucky, 1965
Charles W. Byers, professor, Ph.D., Ohio State, 1972
Rodney W. Tulloch, associate professor, Ph.D., Penn State, 1972

### AGRICULTURAL ENGINEERING

Linus R. Walton, chair

Jesse B. Brooks, associate professor emeritus, M.S., Auburn, 1950
Matthew E. Byers, assistant adjunct professor, Ph.D., Nebraska, 1990
Donald G. Colliver, associate professor, Ph.D., Purdue, 1979
George A. Duncan, extension professor, Ph.D., Kentucky, 1980
Dwayne R. Edwards, associate professor, Ph.D., Oklahoma State, 1988
Robert L. Fehr, extension professor, Ph.D., Iowa State, 1976
Richard S. Gates, associate professor, Ph.D., Cornell, 1984
William E. Murphy, extension professor, Ph.D., Purdue, 1980
Douglas G. Overhults, associate extension professor, Ph.D., Nebraska, 1982
Blaine Frank Parker, professor emeritus, Ph.D., Michigan State, 1954
Frederick A. Payne, professor, Ph.D., Kentucky, 1980
Ira Joseph Ross, professor, Ph.D., Purdue, 1960
Scott A. Shearer, associate professor, Ph.D., Ohio State, 1986
Edward Manson Smith, professor emeritus, M.S., Kansas State, 1950
Joseph L. Taraba, associate extension professor, Ph.D., Ohio State, 1978
Larry W. Turner, extension professor, Ph.D., Kentucky, 1984
John Neal Walker, professor, Ph.D., Purdue, 1961
Linus R. Walton, professor, Ph.D., Tennessee, 1974
Richard C. Warner, associate extension professor, Ph.D., Clemson, 1981
Larry G. Wells, professor, Ph.D., North Carolina State, 1975
Gerald Martin White, professor emeritus, Ph.D., Purdue, 1960

### AGRONOMY

M. Scott Smith, chair

Roger Allen Andersen, associate professor adjunct, Ph.D., Wisconsin, 1963
Richard Irven Barnhisel, professor, Ph.D., Virginia Polytechnic Institute, 1964
Michael Barrett, associate professor, Ph.D., University of California-Davis, 1980
Morris Jay Bitzer, extension professor, Ph.D., Purdue, 1968
Robert L. Blevins, professor, Ph.D., Ohio State, 1967
Robert Cecil Buckner, professor adjunct emeritus, Ph.D., Minnesota, 1955
Harold Rhodes Burton, associate professor, Ph.D., Louisville, 1964
Lowell Palmer Bush, professor, Ph.D., Iowa State, 1964
Joseph Chappell, associate professor, Ph.D., California-Santa Cruz, 1981
George M. Cheniae, professor, Ph.D., North Carolina State, 1959
Glenn Burton Collins, professor, Ph.D., North Carolina State, 1966
Michael Collins, professor, Ph.D., Kentucky, 1978
Paul Leroy Cornelius, professor, Ph.D., Illinois, 1972
Mark S. Coyne, assistant professor, Ph.D., Michigan State, 1989
David C. Ditsch, assistant extension professor, Ph.D., Virginia Tech, 1991
Charles Thomas Dougherty, professor, Ph.D., Purdue, 1966
Dennis B. Egli, professor, Ph.D., Illinois, 1969
Vasilios P. Evangelou, professor, Ph.D., California-Davis, 1980
Joseph F. Freeman, professor emeritus, M.S., Kentucky, 1923
Wilbur W. Frye, professor, Ph.D., Virginia Polytechnic Institute, 1969
Lawrence J. Grabau, associate professor, Ph.D., Missouri, 1984
J.D. Green, associate extension professor, Oklahoma State, 1986
John Hamman Grove, associate professor, Ph.D., Georgia, 1980
Jimmy C. Henning, associate extension professor, Ph.D., Kentucky, 1986
James Herbek, extension professor, Ph.D., Illinois, 1970
James Watt Herron, extension professor emeritus, Ph.D., Cornell, 1951
Andrew Jackson Hiatt, professor, Ph.D., North Carolina State, 1960
David Floyd Hildebrand, associate professor, Ph.D., Illinois, 1982
Arthur G. Hunt, associate professor, Ph.D., Brandeis, 1981
Anastasios D. Karathanasis, professor, Ph.D., Auburn University, 1982
Garry D. Lacefield, extension professor, Ph.D., Missouri, 1974
Paul Davis Legg, professor, Ph.D., North Carolina State, 1964
James Everett Leggett, professor emeritus, Ph.D., Maryland, 1965
William C. Maksymowicz, associate extension professor, Ph.D., Clemson, 1988
James R. Martin, extension professor, Ph.D., Kentucky, 1978
Herbert Fane Massey, Jr., professor, Ph.D., Wisconsin, 1952
Lloyd W. Murdock, Jr., extension professor, Ph.D., Virginia Polytechnic Institute, 1967
Mark T. Nielsen, professor, Ph.D., Kansas State, 1980
Gary K. Palmer, associate extension professor, Ph.D., Tennessee, 1984
Robert C. Pearce, assistant extension professor, Ph.D., Georgia, 1994
Edmund Perfect, assistant professor, Ph.D., Cornell, 1986
Todd Wayne Pfeiffer, professor, Ph.D., Wisconsin-Madison, 1981
Ronald Edward Phillips, professor emeritus, Ph.D., Iowa State, 1959
Timothy D. Phillips, assistant professor adjunct, Ph.D., North Carolina State, 1991
Charles Gustav Poneleit, professor, Ph.D., Purdue, 1967
Andrew J. Powell, extension professor, Ph.D., Virginia Polytechnic Institute, 1966
John Leonard Ragland, professor, Ph.D., North Carolina State, 1959
Monroe Rasnake, associate extension professor, Ph.D., Kentucky, 1973
Harold B. Rice, associate extension professor emeritus, Ph.D., North Carolina State, 1966
John Leonidas Sims, professor, Ph.D., Iowa State, 1960
Jones H. Smiley, extension professor emeritus, Ph.D., Wisconsin, 1963
M. Scott Smith, professor, Ph.D., Michigan State, 1978
Granville Woolman Stokes, professor emeritus, Ph.D., Wisconsin, 1953
Norman Linn Taylor, professor, Ph.D., Cornell, 1953
Timothy Henry Taylor, professor emeritus, Ph.D., Penn State, 1955

Dennis M. TeKrony, professor, Ph.D., Oregon State, 1969
William C. Templeton, Jr., professor emeritus, Ph.D., Purdue, 1960
William Orville Thom, extension professor, Ph.D., Missouri, 1975
Grant Worthington Thomas, professor, Ph.D., North Carolina State, 1958
David Anthony Van Sanford, professor, Ph.D., North Carolina State, 1981
George Joseph Wagner, professor, Ph.D., SUNY at Buffalo, 1974
Gilbert T. Webster, professor emeritus, Ph.D., Iowa, 1949
Kenneth Lincoln Wells, extension professor, Ph.D., Iowa State, 1963
William W. Witt, professor, Ph.D., North Carolina State, 1974

## ANIMAL SCIENCES

Guy H. Kiracofe, chair

Debra K. Aaron, associate professor, Ph.D., Oklahoma State, 1984
Curtis W. Absher, extension professor, Ph.D., Tennessee, 1969
Donna M. Amaral-Phillips, associate professor, Ph.D., Iowa State, 1988
Richard L. Anderson, professor emeritus, Ph.D., Iowa State, 1941
John P. Baker, professor emeritus, Ph.D., Illinois, 1960
Charles E. Barnhart, professor emeritus, Ph.D., Iowa State, 1954
James A. Boling, professor, Ph.D., Wisconsin, 1967
Neil W. Bradley, professor emeritus, Ph.D., Illinois, 1958
C. Frank Buck, professor emeritus, Ph.D., Cornell, 1953
K. Darrh Bullock, assistant extension professor, Ph.D., Georgia, 1992
Walter R. Burris, extension professor, Ph.D., Kentucky, 1974
Austin H. Cantor, associate professor, Ph.D., Cornell, 1974
G. L. Monty Chappell, extension professor, Ph.D., Virginia Polytechnic Institute, 1966
Richard D. Coffey, assistant extension professor, Ph.D., Kentucky, 1994
William L. Crist, extension professor, Ph.D., Ohio State, 1970
Gary L. Cromwell, professor, Ph.D., Purdue, 1967
Karl A. Dawson, professor, Ph.D., Iowa State, 1979
Ray H. Dutt, professor emeritus, Ph.D., Wisconsin, 1948
Lee A. Edgerton, associate professor, Ph.D., Purdue, 1970
Donald G. Ely, professor, Ph.D., Kentucky, 1966
Nelson Gay, professor emeritus, Ph.D., Illinois, 1962
David L. Harmon, associate professor, Ph.D., Nebraska, 1983
Robert J. Harmon, professor, Ph.D., Guelph, Ontario, 1977
Virgil W. Hays, professor emeritus, Ph.D., Iowa State, 1957
George Heersche, Jr., extension professor, Ph.D., Kansas State, 1975
Roger W. Hemken, professor, Ph.D., Cornell, 1957
Clair L. Hicks, professor, Ph.D., Wisconsin, 1974
James A. Jackson, associate professor, Ph.D., Kentucky, 1982
John T. Johns, extension professor, Ph.D., Michigan State, 1974
James D. Kemp, professor emeritus, Ph.D., Illinois, 1952
Guy H. Kiracofe, professor, Ph.D., Kansas State, 1965
Bruce E. Langlois, professor, Ph.D., Purdue, 1962
Brian T. Larson, assistant professor, Ph.D., Missouri, 1993
Laurie M. Lawrence, associate professor, Ph.D., Colorado State, 1982
Merlin D. Lindemann, associate professor, Ph.D., Minnesota, 1981
Alan J. McAllister, associate extension professor, Ph.D., Ohio State, 1975
George E. Mitchell, Jr., professor, Ph.D., Illinois, 1956
William G. Moody, professor, Ph.D., Missouri, 1963
Joseph O'Leary, associate professor, Ph.D., Minnesota, 1974
Gary R. Parker, extension professor, Ph.D., Kentucky, 1975
David J. Patterson, associate extension professor, Ph.D., Kansas, 1988
Anthony J. Pescatore, associate extension professor, Ph.D., Texas A&M, 1981
John C. Robertson, professor emeritus, Ph.D., Kentucky, 1960
Keith K. Schillo, associate professor, Ph.D., Wisconsin, 1981
William J. Silvia, associate professor, Ph.D., Colorado State, 1984
Herbert J. Strobel, assistant professor, Ph.D., Cornell, 1990
Fred A. Thrift, professor, Ph.D., Oklahoma State, 1968
James H. Tidwell, assistant professor adjunct, Ph.D., Mississippi State, 1987
Ray E. Tucker, professor emeritus, Ph.D., Kentucky, 1966
W. Y. Varney, extension professor emeritus, Ph.D., Michigan State, 1960
M. D. Whiteker, extension professor emeritus, Ph.D., Kentucky, 1961
Craig H. Wood, associate extension professor, Ph.D., New Mexico State, 1985
Patch G. Woolfolk, professor emeritus, Ph.D., Cornell, 1950
Youling L. Xiong, assistant professor, Ph.D., Washington State, 1989
Panayiotis M. Zavos, professor, Ph.D., Minnesota, 1978

## COOPERATIVE EXTENSION

Roger A. Rennekamp, associate extension professor, Ph.D., Ohio State, 1987
Alan Utz, Jr., professor emeritus, Ph.D., Wisconsin, 1965

## ENTOMOLOGY

Bobby Clifton Pass, chair

Robert J. Barney, assistant professor adjunct, Ph.D., Kentucky, 1985
Ricardo T. Bessin, assistant extension professor, Ph.D., Louisiana State, 1990
Grayson C. Brown, associate professor, Ph.D., Washington State University, 1977
Douglas Lee Dahlman, professor, Ph.D., Iowa State, 1965
Ke Dong, assistant research professor, Ph.D., Cornell, 1993
Paul H. Freytag, professor emeritus, Ph.D., Ohio State, 1963
Kenneth F. Haynes, associate professor, Ph.D., California, Davis, 1982
Randy E. Hunt, assistant professor adjunct, Ph.D., Ohio State, 1988
Douglas W. Johnson, extension professor, Ph.D., Florida, 1980
Fred William Knapp, professor, Ph.D., Kansas State, 1961
Allen J. Moore, assistant professor, Ph.D., Colorado, 1988
Gerald L. Nordin, professor, Ph.D., Illinois, 1971
Bobby Clifton Pass, professor, Ph.D., Clemson, 1962
Daniel A. Potter, professor, Ph.D., Ohio, 1978
Michael F. Potter, associate extension professor, Ph.D., Arizona, 1982
Juan Guadelupe Rodriquez, professor emeritus, Ph.D., Ohio State, 1949
Rudolph A. Scheibner, extension professor emeritus, Ph.D., Michigan State, 1963
John D. Sedlacek, assistant professor adjunct, Ph.D., Kentucky, 1985
Richard Thurston, professor emeritus, Ph.D., Rutgers, 1952
Lee Hill Townsend, extension professor, Ph.D., Virginia Polytechnic Institute, 1977
Bruce A. Webb, assistant professor, Ph.D., Washington, 1988
Paul A. Weston, assistant professor adjunct, Ph.D., Michigan State, 1986
David H. Wise, professor, Ph.D., Michigan, 1974
Kenneth V. Yeargan, professor, Ph.D., California, 1974

## FORESTRY

Robert N. Muller, chair

Mary A. Arthur, assistant professor, Ph.D., Cornell, 1990
Thomas G. Barnes, associate extension professor, Ph.D., Texas A & M, 1988
David L. Brown, assistant professor, Ph.D., California, Berkeley, 1994
George B. Coltharp, associate professor emeritus, Ph.D., Michigan State, 1958
Donald H. Graves, extension professor, Ph.D., Kentucky, 1974
Deborah B. Hill, associate extension professor, Ph.D., Yale, 1977
Paul J. Kalisz, associate professor, Ph.D., Florida, 1982
Thomas W. Kimmerer, associate professor, Ph.D., Wisconsin, 1981
Michael J. Lacki, assistant professor, Ph.D., N.C. State, 1984
Calvin J. Liu, associate professor, Ph.D., Louisiana State, 1976
Robert N. Muller, associate professor, Ph.D., Yale, 1975
Matthew H. Pelkki, assistant professor, Ph.D., Minnesota, 1991
James M. Ringe, associate professor, Ph.D., Purdue, 1983
David B. Wagner, associate professor, Ph.D., California, Davis, 1986
Allan J. Worms, associate extension professor, Ph.D., Texas A&M, 1972

## HORTICULTURE AND LANDSCAPE ARCHITECTURE

Dewayne L. Ingram, chair

Robert G. Anderson, extension professor, Ph.D., Florida, 1976
Douglas D. Archbold, associate professor, Ph.D., Michigan State, 1982
Sharon Bale, extension specialist, M.S., Kentucky, 1975
Gerald R. Brown, extension professor, Ph.D., Arkansas, 1974
Jack W. Buxton, associate professor, Ph.D., Kentucky, 1973
Ned M. Crankshaw, assistant professor, M.L.A., Iowa State, 1988
Winston Dunwell, associate extension professor, Ph.D., Idaho, 1978
William M. Fountain, extension professor, Ph.D., Louisiana, 1979
Robert L. Geneve, associate professor, Ph.D., Minnesota, 1985
Robert L. Houtz, associate professor, Ph.D., Michigan State, 1984
Dewayne L. Ingram, professor, Ph.D., Tennessee, 1977
R. Terry Jones, associate extension professor, Ph.D., Ohio State, 1974
Thomas R. Kemp, professor, Ph.D., Kentucky, 1970
Patricia E. Klein, assistant professor, Ph.D., Texas A&M, 1989
Dean E. Knavel, professor emeritus, Ph.D., Michigan State, 1959
Desmond R. Layne, assistant professor adjunct, Ph.D., Michigan State, 1992
Robert E. McNiel, extension professor, Ph.D., Purdue, 1975
Thomas J. Nieman, professor, Ph.D., Southern Illinois, 1973
C. R. Roberts, extension professor emeritus, Ph.D., Texas A&M, 1964
Albert Brent Rowell, assistant extension professor, Ph.D., Cornell, 1984
Horst Schach, professor, M.L.A., California, 1966
Janice C. Schach, professor, M.L.A., Guelph, 1981
G. William Schneider, professor emeritus, Ph.D., Rutgers, 1950
John C. Snyder, associate professor, Ph.D., Minnesota, 1978
Leonard P. Stoltz, associate professor emeritus, Ph.D., Purdue, 1965
John G. Strang, extension professor, Ph.D., Oregon State, 1978
Leslie A. Weston, associate professor, Ph.D., Michigan State, 1986
Albert S. Williams, extension professor emeritus, Ph.D., North Carolina State, 1954
Mary L. Witt, extension professor, Ph.D., Oregon State, 1976

*adjunct appointment

## PLANT PATHOLOGY

David A. Smith, chair

Said A. Ghabrial, professor, Ph.D., Louisiana State, 1965

John R. Hartman, extension professor, Ph.D., Wisconsin, 1971
Sheng Yang He, assistant professor, Ph.D., Cornell, 1991
James W. Hendrix, professor, Ph.D., North Carolina State, 1963
Donald E. Hershman, extension professor, Ph.D., Rutgers, 1982
Joseph A. Kuc', professor emeritus, Ph.D., Purdue, 1955
William C. Nesmith, extension professor, Ph.D., North Carolina State, 1977
Thomas P. Pirone, professor, Ph.D., Wisconsin, 1960
Christopher L. Schardl, associate professor, Ph.D., California-Davis, 1983
Louis Shain, professor, Ph.D., North Carolina State, 1967
John G. Shaw, professor, Ph.D., Wisconsin, 1960
Shuh J. Sheen, professor emeritus, Ph.D., Minnesota, 1962
Robert J. Shepherd, professor, Ph.D., Wisconsin, 1959
Malcolm R. Siegel, professor, Ph.D., Maryland, 1962
David A. Smith, professor, Ph.D., Cornell, 1974
Paul C. Vincelli, associate extension professor, Ph.D., Cornell, 1988
Harry E. Wheeler, professor emeritus, Ph.D., Louisiana State, 1949

### SOCIOLOGY

James G. Hougland, chair

Howard Beers, professor emeritus, Ph.D., Cornell, 1935
James S. Brown, professor emeritus, Ph.D., Harvard, 1950
Larry L. Burmeister, associate professor, Ph.D., Cornell, 1984
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor emeritus, Ph.D., Missouri, 1953
Patricia H. Dyk, assistant professor, Ph.D., Utah State, 1990
Lorraine E. Garkovich, professor, Ph.D., Missouri, 1976
Thomas R. Greider, associate professor, Ph.D., Utah State, 1986
Gary L. Hansen, associate extension professor, Ph.D., Iowa State, 1978
Rosalind P. Harris, assistant professor, Ph.D., Pennsylvania State, 1990
Ronald J. Hustedde, assistant extension professor, Ph.D., Wisconsin, 1988
Thomas W. Ilvento, associate extension professor, Ph.D., Penn State, 1985
William F. Kenkel, professor emeritus, Ph.D., Ohio State, 1952
Richard C. Maurer, extension professor, Ph.D., Ohio State, 1977
Scott A. Samson, assistant extension professor, Ph.D., Nebraska, 1988
Louis E. Swanson, Jr., professor, Ph.D., Penn State, 1982
Paul D. Warner, extension professor, Ph.D., Ohio State, 1973

### VETERINARY SCIENCE

Peter J. Timoney, chair

George P. Allen, professor, Ph.D., Kentucky, 1975
Ernest F. Bailey, professor, Ph.D., California-Davis, 1979
John T. Bryans, professor emeritus, Ph.D., Cornell, 1954
Thomas M. Chambers, assistant professor, Ph.D., Notre Dame, 1982
Ernest G. Cothran, associate research professor, Ph.D., Oklahoma, 1982
Ward W. Crowe, professor emeritus, D.V.M., Auburn, 1957
James M. Donahue, clinical professor, Ph.D., Missouri, 1971
J. Harold Drudge, professor emeritus, D.V.M., Michigan State, 1943; Sc. D., Johns Hopkins, 1950
Roberta M. Dwyer, assistant professor, D.V.M., Iowa State, 1985
Barry P. Fitzgerald, associate professor, Ph.D., Reading, England, 1979
Ralph C. Giles, Jr., clinical professor, D.V.M., Auburn, 1970
David E. Granstrom, associate professor, D.V.M., Kansas, 1978; Ph.D., Kansas, 1988
Kathryn T. Graves, assistant research professor, Ph.D., Cornell, 1985
Lenn R. Harrison, clinical professor, V.M.D., Pennsylvania, 1967
C. B. Hong, clinical professor, B.V.Sc., National Taiwan University, 1965; Ph.D., Cornell, 1972
Charles J. Issel, professor, D.V.M., California, Davis, 1969; Ph.D., Wisconsin-Madison, 1973
Donald E. LaBore, extension professor emeritus, D.V.M., Colorado State, 1942
Douglas H. Leach, professor, Ph.D., Saskatchewan, 1980
Robert G. Loy, professor emeritus, Ph.D., Wisconsin, 1959
Eugene T. Lyons, professor, Ph.D., Colorado State, 1963
William H. McCollum, professor, Ph.D., Wisconsin, 1954
Karen J. McDowell, associate professor, Ph.D., Florida, 1986
E. Duane Miksch, extension professor emeritus, D.V.M., Kansas State, 1957
Marie B. Petritis-Murphy, associate clinical professor, D.V.M., Texas A&M, 1979; Ph.D., Texas A&M, 1986
K. B. Poonacha, clinical professor, D.V.M., Madras University, India, 1963; Ph.D., Wisconsin, 1972
David G. Powell, associate extension professor, B.V.Sc., FRCVS, Bristol University, England, 1965
James R. Rooney, professor emeritus, D.V.M., Cornell, 1954
Roy A. Smith, associate professor, Ph.D., University of Alberta, 1974
Thomas W. Swerczek, professor, D.V.M., Kansas State, 1964; Ph.D., Connecticut, 1969
Kent N. Thompson, assistant professor, Ph.D., Kentucky 1986
Edward H. Timmons, associate professor adjunct, D.V.M., Georgia, 1963
John F. Timoney, professor, M.V.B., National University of Ireland, 1965; D.C.S., National University of Ireland, 1983; Ph.D., National University of Ireland, 1969
Peter J. Timoney, professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Trinity College (University of Dublin), Ireland, 1974; FRCVS, Royal College of Veterinary Surgeons, 1978
Thomas Tobin, professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Toronto, Canada, 1969
Robert R. Tramontin, associate clinical professor, D.V.M., Auburn, 1965
Patricia A. Tuttle, professor emeritus, D.V.M., Michigan State, 1954
Mary Lynne Vickers, associate professor, Ph.D., Wisconsin, 1981
Neil M. Williams, assistant clinical professor, D.V.M., Mississippi State, 1982; Ph.D., Kentucky, 1992

## COLLEGE OF ALLIED HEALTH PROFESSIONS

Thomas C. Robinson, dean

### DEPARTMENT OF CLINICAL SCIENCES

Geza G. Bruckner, chair

#### Clinical Laboratory Sciences

Anne Stiene-Martin, division director

Lynn Alexander, assistant professor, B.B. (ASCP), S.B.B., M.Ed., Vanderbilt, 1985
Thomas Earle Bowen, associate professor, M.T., (ASCP), Ph.D., Alabama, 1968
Jean Brickell, assistant professor, M.T., (ASCP), Ed.D., Washington State, 1993
Kim Campbell, instructional assistant, M.T. (ASCP), M.S., Kentucky, 1985
Patricia Ann Collins, associate professor, M.T. (ASCP), M.S., West Virginia, 1971
Vincent S. Gallicchio, professor, M.T. (ASCP), Ph.D., New York, 1986
Linda Gorman, associate professor, M.T. (ASCP), M.S., Virginia Commonwealth University, 1980
Mary Frances James, professor emeritus, M.T. (ASCP), M.S., Alabama, 1961
Raymond Olesinski, assistant professor, M.T. (ASCP), Ph.D., Illinois, 1993
Margaret Steinman, M.T. (ASCP), S.B.B., B.S., Point Park College, 1978
E. Anne Stiene-Martin, professor, M.T. (ASCP), M.S., Minnesota, 1969; Ph.D., Kentucky, 1991
Marie Vittetoe, professor emeritus, M.T. (ASCP), C.L.S., Ed.D., West Virginia, 1973

#### Clinical Nutrition

Geza G. Bruckner, division director

James W. Anderson,* professor, M.D., Northwestern, 1961
Gilbert Boissonneault, associate professor, Ph.D., Illinois, 1982
Maria Boosalis, assistant professor, Ph.D., R.D., Minnesota, 1984
Geza G. Bruckner, professor, Ph.D., Kentucky, 1979
Rajender Chawla,* professor, Ph.D., Georgia Tech, 1969
Robert P. Dillard, associate professor, M.D., Kentucky, 1967
Elaine Jacobson, professor, Ph.D., Kansas State, 1971
Theresa Kremer, clinical instructor, M.S., R.D., Kentucky, 1982
Craig J. McClain,* professor, M.D., Tennessee, 1972
Thomas Schwarcz, associate professor, M.D., Ohio State, 1979
Richard Schwartz,* associate professor, M.D., Virginia 1979
Paul A. Thornton, professor emeritus, Ph.D., Michigan State, 1956

*joint appointment

#### Communication Disorders

Judith L. Page, division director

Jodelle F. Deem, assistant professor, Ph.D., Memphis State, 1988
Lori Gonzalez, assistant professor, Ph.D., Florida, 1989
Judith L. Page, associate professor, Ph.D., Purdue, 1981
Beverly A. Stanley, assistant professor, M.A., Kentucky, 1959
Sharon Stewart, associate professor, Ed.D., Kentucky, 1986

#### Physical Therapy

Terry R. Malone, division director

Dean P. Currier, professor emeritus, Ph.D., Maryland, 1971
Marlene Deschler, assistant professor, D.P.A., P.T., Nova, 1981
Tony English, assistant professor, P.T., M.S.Ed., Kentucky, 1990
Gail C. Freidhoff, assistant professor, P.T., M.A.T., North Carolina, 1977
Anne L. Harrison, assistant professor, M.S.P.T., Indiana, 1983
Ramona Hicks, assistant professor, P.T., Ph.D., Connecticut, 1993
Deborah G. Kelly, assistant professor, P.T., M.S.Ed., Kentucky, 1987
Terry R. Malone, P.T., Ed.D., North Carolina, 1985

Arthur J. Nitz, associate professor, P.T., Ph.D., Kentucky, 1984
Joanne O'Keefe, assistant professor, P.T., Ph.D., Illinios, 1992
Stuart Ware, assistant professor, Ph.D., Iowa State, 1980
Geralyn M. Wojtowicz, assistant professor, M.S., P.T., Indiana, 1985

### Radiation Science

Ralph C. Christensen, division director

Ralph C. Christensen, associate professor, Ph.D., California-Berkeley, 1971
Joseph Sayeg,* associate professor emeritus, Ph.D., California-Berkeley, 1954
Guy H. Simmons,* professor, Ph.D., Cincinnati, 1972

*joint appointment

## DEPARTMENT OF HEALTH SERVICES

Gerry Gairola, chair

### Clinical Pastoral Counseling

Benjamin P. Bogia, division director

Benjamin P. Bogia, associate professor, M.Div., Princeton Theological Seminary, 1959

### Health Administration

division director to be announced

Joyce E. Beaulieu, Ph.D., associate professor, Michigan, 1985
Frank A. Butler, adjunct associate professor, M.H.A., Medical College of Virginia, 1972
Joseph L. Fink III,* professor, J.D., Georgetown, 1973
Joseph Hamburg, professor emeritus, M.D., Hahnemann, 1951
Joel M. Lee, associate professor, Dr. P.H., Texas, 1979
William K. Massie, adjunct assistant professor, M.H.A., Xavier, 1976
Carol Molinari, assistant professor, Ph.D., Johns Hopkins, 1990
Thomas C. Robinson, professor, Ph.D., SUNY-Buffalo, 1971
Thomas Samuel, associate professor, J.D., Tennessee, 1976
Gary W. Shannon,* professor, Ph.D., Michigan, 1970
Mike Shannon, professor, Ph.D., Wisconsin-Madison, 1976
Thomas C. Tucker, associate professor, M.P.H., Michigan, 1982

*joint appointment

### Health Sciences Education

Gerry Gairola, acting division director

Jane M. Emanuel, associate professor emeritus, Ed.D., Alabama, 1970
Davis L. Gardner, professor emeritus, M.A., Kentucky, 1950
Lea J. Perritt, assistant professor (part-time), Ph.D., Kentucky, 1983
William G. Pfeifle, professor, Ed.D., Kentucky, 1977
Karen O. Skaff, associate professor, M.S., Columbia, 1971

### Physician Assistant Studies

Herbert Ridings, division director

Gerry Gairola, associate professor, Ph.D., Kentucky, 1975
Carlene Hamilton, M.S., Ed., Kentucky, 1992
Doris A. Rapp, assistant professor, Pharm.D., PA-C, Kentucky, 1970
Herbert Ridings, assistant professor, M.A., PA-C, Western Michigan, 1982
Bradford W. Schwartz, instructor, B.S., PA-C, Oklahoma, 1984
Samuel R. Scott,* professor, M.D., Bowman Gray, 1969
Robert Wildman, associate professor, PA-C, M.A., Temple, 1976

*joint appointment

## COLLEGE OF ARCHITECTURE

David B. Mohney, dean

David M. Biagi, assistant professor, M.Arch., Ohio State, 1987
Carol Buhrmann, assistant professor, M.S. Bldg. Design, Columbia, 1990
Clyde R. Carpenter, professor, M.Arch., Pennsylvania, 1962
Maria G. Dallerba-Ricci, professor, D.Arch. & Urban Design, Florence, 1964
Stephen C. Deger, associate professor, M.S.Arch.Engr., Illinois, 1966
Henri T. de Hahn, associate professor, M.Arch., E.P.F.L., Lausanne, 1985
Hans Gesund,* professor, D.Engr., Yale, 1958
Robert B. Gillig, assistant professor, M.Arch., Cornell, 1984
Charles P. Graves, professor and dean emeritus, M.Arch., Pennsylvania, 1957
John R. Groves, Jr., associate professor, B.Arch., Kentucky, 1970; J.D., Kentucky, 1972; Ph.D., Kentucky, 1992
Scott L. Guyon, assistant professor, B.Arch., Kentucky, 1983
Michael W. Jacobs, assistant professor, B.Arch., Kentucky, 1975
Peyman Jahed, assistant professor, M.A. Civil Engr., Kentucky, 1982
Richard S. Levine, professor, M.Arch., Rennsselaer, 1963
Dennis Marshall, assistant professor, M.Arch., Harvard, 1992
Wallis Miller, assistant professor, M.A., Princeton, 1990
David B. Mohney, professor, M.Arch., Princeton, 1981
Mark J. O'Bryan, associate professor, M.Arch., Cornell, 1987
Paul M. Pinney, associate professor, M.S.Arch., Columbia, 1967
Keith D. Plymale, associate professor, M.S.Arch., Columbia, 1987
Roy M. Porter, Jr., assistant professor, M.Arch., Pennsylvania, 1987
Anthony Roccanova, associate professor, M.Arch., Cornell, 1972
Jerzy Rozenberg, associate professor, M.A., New York, 1981
Julia W. Smyth-Pinney, associate professor, M.Arch., Harvard, 1979
David A. Spaeth, professor, M.Arch., Illinois Institute of Technology, 1966
Mabel O. Wilson, assistant professor, M.Arch., Columbia, 1991
Leonard F. Wujcik, associate professor, M.A., Eastern Kentucky, 1974

*joint appointment

## COLLEGE OF ARTS AND SCIENCES

Richard Edwards, dean

### AEROSPACE STUDIES

(Air Force ROTC)

Col. Craig Koontz, chair

Captain Brian Crawford, assistant professor, M.A., Indiana, Pennsylvania, 1982
Captain Dale Grupe, assistant professor, B.S., Air Force Academy, 1984; M.A., Webster, 1991
Colonel Craig Koontz, professor, M.A., Miami, Ohio, 1971
Captain Kelly Wilson, assistant professor, B.A., Kentucky, 1982; M.A., Webster, 1985

### ANTHROPOLOGY

Tom D. Dillehay, chair

Susan Abbott-Jamieson, associate professor, Ph.D., North Carolina, 1974
William Y. Adams, professor emeritus, Ph.D., Arizona, 1958
Mary K. Anglin, assistant professor, Ph.D., New School for Social Research, 1990
Lee Blonder, assistant professor, Ph.D., Pennsylvania 1986
Brenda J. Clay, adjunct assistant professor, Ph.D., Southern Illinois, 1974
R. Berle Clay, adjunct assistant professor, Ph.D., Southern Illinois, 1960
Tom D. Dillehay, professor, Ph.D., Texas-Austin, 1976
Carolyn P. Edwards, professor, Ed.D., Harvard, 1974
Beth Goldstein, associate professor, Ph.D., Wisconsin, 1985
N. Thomas Hakansson, assistant professor, Ph.D., Uppsala, Sweden, 1987
Mary Hodges, associate professor, Ph.D., Michigan, 1984
Richard Jefferies, assistant professor, Ph.D., Georgia, 1978
Bryan M. Johnstone, assistant professor, Ph.D., Arizona, 1986
Robert F. Kraus, professor, M.D., Wisconsin, 1955
Margaret Lantis, professor emerita, Ph.D., California-Berkeley, 1939
Peter Little, associate professor, Ph.D., Indiana, 1983
Kim McBride, adjunct assistant professor, Ph.D., Michigan State, 1990
Stephen McBride, adjunct assistant professor, Ph.D., Michigan State, 1993
A. Endre Nyerges, assistant professor, Ph.D., Pennsylvania, 1988
Mary L. Powell, adjunct assistant professor, Ph.D., Northwestern, 1985
Karl B. Raitz, professor, Ph.D., Minnesota, 1970
Shaunna L. Scott, assistant professor, Ph.D., California-Berkeley, 1988
Monica Udvardy, assistant professor, Ph.D., Uppsala, Sweden, 1990
John van Willigen, professor, Ph.D., Arizona, 1971
H. Jean Wiese, associate professor, Ph.D., North Carolina, 1971

### SCHOOL OF BIOLOGICAL SCIENCES

Philip H. Crowley, director

M. I. H. Aleem, professor, Ph.D., Cornell, 1959
Thomas C. Barr, Jr., professor emeritus, Ph.D., Vanderbilt, 1958
Carol Baskin, adjunct professor, Ph.D., Vanderbilt, 1968
Jerry M. Baskin, professor, Ph.D., Vanderbilt, 1967
Wesley J. Birge, professor, Ph.D., Oregon State, 1955
P. H. Bonner, associate professor, Ph.D., California; San Diego, 1971
Edmund D. Brodie, III, assistant professor, Ph.D., Chicago, 1991
John M. Carpenter, professor emeritus, Ph.D., Texas, 1946
Jim D. Clark, associate professor, Ph.D., California, Berkeley, 1972
Mike Clark, adjunct associate professor, Ph.D., Texas-Dallas, 1981
W. S. Cohen, associate professor, Ph.D., City University of New York, 1970
Eugene C. Crawford, Jr., professor emeritus, Ph.D., Duke, 1965
Philip H. Crowley, professor, Ph.D., Michigan State, 1975

Wayne H. Davis, professor emeritus, Ph.D., Illinois, 1957
Elizabeth Debski, assistant professor, Ph.D., Virginia, 1985
J. M. Edney, associate professor emeritus, M.S., Iowa, 1934
O. F. Edwards, associate professor emeritus, Ph.D., Yale, 1936
Scott Gleeson, assistant professor, Ph.D., Michigan State, 1986
Lester Goldstein, professor emeritus, Ph.D., Pennsylvania, 1953
Thomas C. Gray, associate professor, Ph.D., Vanderbilt, 1965
Denny O. Harris, associate professor, Ph.D., Indiana, 1967
Carl E. Henrickson, associate professor emeritus, Ph.D., Ohio State, 1950
Christer Hogstrand, assistant professor, Ph.D., University of Goteborg, 1991
James C. Humphries, professor emeritus, Ph.D., Yale, 1944
Grace M. Jones, associate professor, Ph.D., California-Davis, 1983
John J. Just, associate professor, Ph.D., Iowa, 1968
Judith A. Lesnaw, professor, Ph.D., Illinois, 1969
Willem Meijer, professor emeritus, Ph.D., Amsterdam, Holland, 1951
Peter M. Mirabito, assistant professor, Ph.D., Georgia, 1989
John M. Rawls, Jr., professor, Ph.D., North Carolina, 1973
Gerald A. Rosenthal, professor, Ph.D., Duke, 1966
I. Ruchman, professor emeritus, Ph.D., Cincinnati, 1944
Brian Rymond, associate professor, Ph.D., SUNY, Albany, 1984
R. Craig Sargent, associate professor, Ph.D., SUNY-Stony Brook, 1981
Andrew Sih, professor, Ph.D., California, Santa Barbara, 1980
Chuck Staben, assistant professor, Ph.D., California, Berkeley, 1984
Sheldon Steiner, professor, Ph.D., Kentucky, 1967
Gary L. Uglem, professor, Ph.D., Idaho, 1972
David Westneat, assistant professor, Ph.D., North Carolina, 1986
Ralph F. Wiseman, professor emeritus, Ph.D., Wisconsin, 1956
Hong Y. Yan, assistant professor, Ph.D., Texas-Austin, 1986

## CHEMISTRY

Donald E. Sands, chair

Leonidas Bachas, professor, Ph.D., Michigan, 1986
Carolyn P. Brock, professor, Ph.D., Northwestern, 1972
D. Allan Butterfield, professor, Ph.D., Duke, 1974
Arthur Cammers-Goodwin, assistant professor, Ph.D., Wisconsin, 1994
Dennis J. Clouthier, professor, Ph.D., Saskatchewan, 1980
Audrey L. Companion, professor emeritus, Ph.D., Carnegie, 1958
Paul L. Corio, professor, Ph.D., Columbia, 1957
Sylvia Daunert, assistant professor, Ph.D., Barcelona, Spain, 1991
Burtron H. Davis, adjunct professor, Ph.D., Florida, 1965
William D. Ehmann, professor emeritus, Ph.D., Carnegie, 1957
Roger S. Grev, assistant professor, Ph.D., California, Berkeley, 1986
Robert B. Grossman, assistant professor, Ph.D., Massachusetts Institute of Technology, 1992
Robert D. Guthrie, professor, Ph.D., Rochester, 1963
Boyd E. Haley, professor, Ph.D., Washington State, 1971
Floyd J. Holler, professor, Ph.D., Michigan State, 1977
Robert W. Kiser, professor, Ph.D., Purdue, 1958
Folami T. Lapido, assistant professor, Ph.D., Virginia Polytechnic Institute, 1991
Robert A. Lodder, associate professor, Ph.D., Indiana, 1988
Vahid Majidi, assistant professor, Ph.D., Wayne State, 1987
Mark S. Meier, assistant professor, Ph.D., Oregon, 1988
Kurt Niedenzu, professor emeritus, Dr. rer.nat., Heidelberg, Germany, 1956
James E. O'Reilly, associate professor, Ph.D., Michigan, 1971
John M. Patterson, professor emeritus, Ph.D., Northwestern, 1953
William K. Plucknett, associate professor emeritus, Ph.D., Iowa State, 1942
J. David Robertson, associate professor, Ph.D., Maryland, 1986
Donald E. Sands, professor, Ph.D., Cornell, 1955
Paul G. Sears, professor emeritus, Ph.D., Kentucky, 1953
John P. Selegue, professor, Ph.D., Massachusetts Institute of Technology, 1979
Stanford L. Smith, professor, Ph.D., Iowa State, 1961
Walter T. Smith, Jr., professor emeritus, Ph.D., Indiana, 1946
Martin Stiles, adjunct professor, Ph.D., Harvard, 1953
Robert Toreki, assistant professor, Ph.D., Massachusetts Institute of Technology, 1991
William F. Wagner, professor emeritus, Ph.D., Illinois, 1947
David S. Watt, professor, Ph.D., Harvard, 1972
Joseph W. Wilson, associate professor, Ph.D., Indiana, 1961
Steven W. Yates, professor, Ph.D., Purdue, 1973

## CLASSICAL LANGUAGES AND LITERATURES

Jane E. Phillips, chair

James P. Chapman, adjunct associate professor, Ph.D., Indiana, 1972
Hubert M. Martin, Jr., professor, Ph.D., Johns Hopkins, 1958
Jane E. Phillips, professor, Ph.D., North Carolina, 1969
Robert J. Rabel, associate professor, Ph.D., Michigan, 1975
A. Ross Scaife, assistant professor, Ph.D., Texas, 1990
Louis J. Swift, professor, Ph.D., Johns Hopkins, 1963
Terence O. Tunberg, associate professor, Ph.D., Toronto, 1986

## ENGLISH

David S. Durant, chair

Michael E. Adelstein, professor emeritus, Ph.D., Michigan, 1958
Jonathan Allison, associate professor, Ph.D., Michigan, 1988
Richard G. Alvey, associate professor, Ph.D., Pennsylvania, 1974
Ben W. Black, assistant professor emeritus, Ph.D., Michigan, 1953
Thomas O. Blues, associate professor, Ph.D., Iowa, 1966
Virginia L. Blum, associate professor, Ph.D., Brown, 1989
Joan H. Blythe, associate professor, Ph.D., North Carolina, 1971
Anna R. K. Bosch, assistant professor, Ph.D., University of Chicago, 1991
Joseph A. Bryant, Jr., professor emeritus, Ph.D., Yale, 1948
William R. Campbell, associate professor, Ph.D., Oregon, 1967
John G. Cawelti, professor, Ph.D., Iowa, 1960
John L. E. Clubbe, professor, Ph.D., Columbia, 1965
Alfred L. Crabb, Jr., associate professor emeritus, M.S., Peabody, 1941
Gail Summerskill Cummins, assistant professor, Ph.D., Maryland, 1994
Oscar Ronald Dathorne, professor, Ph.D., Sheffield, 1966
Guy M. Davenport, Jr., professor emeritus, Ph.D., Harvard, 1961
Finlay Donesky, assistant professor, Ph.D., Michigan, 1988
David S. Durant, associate professor, Ph.D., North Carolina, 1971
Janet M. Eldred, associate professor, Ph.D., Illinois, 1988
Lee A. Elioseff, associate professor, Ph.D., New York, 1960
Robert O. Evans, professor emeritus, Ph.D., Florida, 1954
Nikky Finney, assistant professor, B.A., Talladega, 1979
Walter C. Foreman, associate professor, Ph.D., Washington, 1974
Lulamae Fragd, assistant professor, Ph.D., California-Berkeley, 1993
Joseph H. Gardner, professor, Ph.D., California, Berkeley, 1969
William A. Gordon, associate professor emeritus, Ph.D., Tulane, 1963
John L. Greenway,* associate professor, Ph.D., Wisconsin, 1969
James Baker Hall, professor, M.A., Stanford, 1961
H. Joan Hartwig, professor, Ph.D., Washington, 1967
Maurice Hatch, associate professor emeritus, Ph.D., Cornell, 1948
Jo Ellen Green Kaiser, assistant professor, Ph.D., California-Berkeley, 1992
Barbara L. Kennedy, assistant professor, Ph.D., Texas, 1987
Kevin S. Kiernan, professor, Ph.D., Case-Western Reserve, 1970
Anna P. Kremer,* assistant professor, Ph.D., Kentucky, 1973
Joyce C. MacDonald, assistant professor, Ph.D., Vanderbilt, 1989
Stephen Manning, professor emeritus, Ph.D., Johns Hopkins, 1956
Jerome T. Meckier, professor, Ph.D., Harvard, 1968
David Lee Miller, professor, Ph.D., California-Irvine, 1979
Peter Mortensen, assistant professor, Ph.D., California, San Diego, 1989
Dana D. Nelson, associate professor, Ph.D., Michigan State, 1989
Gurney Norman, associate professor, A.B., Kentucky, 1959
Jean G. Pival, associate professor emeritus, M.A., Kentucky, 1962
Armando Prats, associate professor, Ph.D., Florida, 1975
Donald A. Ringe, professor emeritus, Ph.D., Harvard, 1954
Ellen B. Rosenman, associate professor, Ph.D., Virginia, 1983
John T. Shawcross, professor emeritus, Ph.D., New York, 1958
Cynthia Miecznikowski Sheard, assistant professor, Ph.D., Penn State, 1992
Gregory T. Stump, associate professor, Ph.D., Ohio State, 1981
Larry J. Swingle, professor, Ph.D., Wisconsin, 1967
Jane G. Vance,* associate professor, Ph.D., North Carolina, 1975
Gregory A. Waller, associate professor, Ph.D., SUNY at Stony Brook, 1978
Steven Weisenburger, associate professor, Ph.D., Washington, 1978
Arthur Wrobel, associate professor, Ph.D., North Carolina, 1968

*joint appointment

## FRENCH LANGUAGE AND LITERATURE

John D. Erickson, chair

Jean D. Charron, professor emeritus, Ph.D., North Carolina, 1956
Phillip A. Duncan, professor emeritus, Ph.D., Indiana, 1958
John D. Erickson, professor, Ph.D., Minnesota, 1964
Raymond C. La Charité, professor, Ph.D., Pennsylvania, 1966
Virginia A. La Charité, professor, Ph.D., Pennsylvania, 1966
Rupert T. Pickens, professor, Ph.D., North Carolina, 1966
Suzanne Pucci, associate professor, Ph.D., Syracuse, 1980
John A. Rea, associate professor emeritus, A.B., Miami, 1948
Sadia Zoubir-Shaw, associate professor, Doctorate, Université de Provence, 1988

## GEOGRAPHY

Richard Ulack, chair

Wilford A. Bladen, associate professor emeritus, Ph.D., Kentucky, 1972
Stanley D. Brunn, professor, Ph.D., Ohio State, 1966
John Paul Jones III, associate professor, Ph.D., Ohio State, 1984
P. P. Karan, professor, Ph.D., Indiana, 1956
Michael D. Kennedy, associate professor, M.S., Louisville, 1979
Thomas Leinbach, professor, Ph.D., Penn State, 1971
John Pickles, professor, Ph.D., Penn State, 1983

Karl B. Raitz, professor, Ph.D., Minnesota, 1970
Susan Roberts, assistant professor, Ph.D., Syracuse, 1992
Graham D. Rowles, professor, Ph.D., Clark University, 1976
Richard H. Schein, assistant professor, Ph.D., Syracuse, 1989
Gary Shannon, professor, Ph.D., Michigan, 1970
Richard Ulack, professor, Ph.D., Penn State, 1972
John F. Watkins, associate professor, Ph.D., Colorado, 1986
William A. Withington, associate professor emeritus, Ph.D., Northwestern, 1955

## GEOLOGICAL SCIENCES

William A. Thomas, chair

Richard Irven Barnhisel,** professor, Ph.D., Virginia Polytechnic Institute, 1964
William R. Brown, professor emeritus, Ph.D., Cornell, 1942
Lois J. Campbell, associate professor emeritus, Ph.D., Ohio State, 1955
James C. Cobb,* assistant professor, Ph.D., Illinois, 1981
M. Ford Cochran, assistant professor, Ph.D., Yale, 1995
William H. Dennen, professor emeritus, Ph.D., Massachusetts Institute of Technology, 1949
James S. Dinger,* assistant professor, Ph.D., Nevada, Reno, 1977
James A. Drahovzal,* associate professor, Ph.D., Iowa, 1966
Frank R. Ettensohn, professor, Ph.D., Illinois, 1975
John C. Ferm, professor, Ph.D., Pennsylvania State, 1952
Irvin S. Fisher, professor emeritus, Ph.D., Harvard, 1952
Alan E. Fryar, assistant professor, Ph.D., Alberta, 1992
Donald C. Haney,* professor, Ph.D., Tennessee, 1967
Paul D. Howell, assistant professor, Ph.D., Michigan, 1993
James C. Hower,* associate professor, Ph.D., Pennsylvania State, 1978
Erwin J. Lyons, associate professor emeritus, Ph.D., Wisconsin, 1947
William C. MacQuown, professor emeritus, Ph.D., Cornell, 1943
David P. Moecher, assistant professor, Ph.D., Michigan, 1988
Bruce Robert Moore, associate professor, Ph.D., Melbourne, Australia, 1967
Kieran O'Hara, associate professor, Ph.D., Brown University, 1984
Nicholas Rast, professor, Ph.D., University of Glasgow, Scotland, 1956
Susan M. Rimmer, associate professor, Ph.D., Pennsylvania State, 1985
Thomas Glasdir Roberts, associate professor emeritus, Ph.D., Columbia, 1949
Lyle V. A. Sendlein,** professor, Ph.D., Iowa State, 1964
Ronald L. Street, associate professor, Ph.D., St. Louis University, 1975
William A. Thomas, professor, Ph.D., Virginia Polytechnic Institute, 1960
John Thrailkill, professor emeritus, Ph.D., Princeton, 1965
Frederick D. Wright,** professor emeritus, M.S., Columbia, 1942

*adjunct appointment

**joint appointment

## GERMANIC LANGUAGES AND LITERATURES

Phillip S. McKnight, chair

Jeannine Blackwell, associate professor, Ph.D., Indiana, 1982
Theodore Fiedler, associate professor, Ph.D., Washington University, 1969
Michael T. Jones, associate professor, Ph.D., Yale, 1978
Bernd Kratz, professor, Ph.D., Marburg, Germany, 1963
Phillip S. McKnight, associate professor, Ph.D., Brown University, 1978
Wolfgang Natter, associate professor, Ph.D., Johns Hopkins, 1990
Ingeborg F. Riester, assistant professor emeritus, M.A., Kentucky, 1952
John Wesley Thomas, professor emeritus, Ph.D., Penn State, 1942
Paul K. Whitaker, professor emeritus, Ph.D., Ohio State, 1942
Linda Kraus Worley, associate professor, Ph.D., Cincinnati, 1985

## HISTORY

George C. Herring, chair

James C. Albisetti, professor, Ph.D., Yale, 1976
Lance Banning, professor, Ph.D., Washington University, 1971
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D.d'U., Grenoble, France, 1955
William J. Chambliss, associate professor emeritus, Ph.D., Michigan, 1963
Francie R. Chassen-Lopez, associate professor, Ph.D., Universidad National de Mexico, 1986
Eric H. Christianson, associate professor, Ph.D., Southern California, 1976
Thomas D. Clark, professor emeritus, Ph.D., Duke, 1932
Thomas Cogswell, associate professor, Ph.D., Washington University, 1983
E. Randolph Daniel, professor, Ph.D., Virginia, 1966
Bruce S. Eastwood, professor, Ph.D., Wisconsin, 1964
Ronald D Eller, associate professor, Ph.D., North Carolina-Chapel Hill, 1979
William W. Freehling, professor, Ph.D., Berkeley, 1963
Daniel J. Gargola, associate professor, Ph.D., North Carolina-Chapel Hill, 1988
Fon L. Gordon, associate professor, Ph.D., Arkansas, 1989
Michael D. Green, associate professor, Ph.D., Iowa, 1973
David E. Hamilton, associate professor, Ph.D., Iowa, 1984
Mary W. M. Hargreaves, professor emeritus, Ph.D., Radcliffe, 1951
George C. Herring, professor, Ph.D., Virginia, 1965
James F. Hopkins, professor emeritus, Ph.D., Duke, 1949
Robert M. Ireland, professor, Ph.D., Nebraska, 1967
Kathi L. Kern, associate professor, Ph.D., Pennsylvania, 1989
Humbert S. Nelli, professor, Ph.D., Chicago, 1965
Donald G. Nugent, associate professor, Ph.D., Iowa, 1965
Robert W. Olson, professor, Ph.D., Indiana, 1973
David M. Olster, associate professor, Ph.D., Chicago, 1985
Theda Perdue, professor, Ph.D., Georgia, 1976
Karen Petrone, assistant professor, Ph.D., Michigan, 1994
Jeremy D. Popkin, professor, Ph.D., California, 1977
Robert W. Randall, associate professor emeritus, Ph.D., Harvard, 1965
Charles P. Roland, professor emeritus, Ph.D., Louisiana State, 1951
Daniel B. Rowland, associate professor, Ph.D., Yale, 1976
Robert Seager II, professor emeritus, Ph.D., Ohio State, 1956
Gerard W. Silberstein, professor emeritus, Ph.D., Harvard, 1962
Daniel B. Smith, associate professor, Ph.D., Virginia, 1977
Gerald L. Smith, associate professor, Ph.D., Kentucky, 1988
Kristin E. Stapleton, assistant professor, Ph.D., Harvard, 1993
Mark W. Summers, professor, Ph.D., California, 1980
Charles G. Talbert, associate professor emeritus, Ph.D., Kentucky, 1952
Robert D. Warth, professor emeritus, Ph.D., Chicago, 1949

## LATIN AMERICAN STUDIES

Francie R. Chassen-Lopez, director

John J. Allen, Department of Spanish and Italian
Aníbal Biglieri, Department of Spanish and Italian
Jerome Branche, Department of Spanish and Italian
Lance W. Brunner, School of Music
Austin H. Cantor, Department of Animal Sciences
Francie R. Chassen-Lopez, Department of History
Charles L. Davis, Department of Political Science
Susan DeCarvalho, Department of Spanish and Italian
Brian J. Dendle, Department of Spanish and Italian
Tom Dillehay, Department of Anthropology
Thomas R. Ford, Department of Sociology
Judith F. Fugate, Collection Development, M.I. King Library
Stephen M. Hart, Department of Spanish and Italian
Joseph Jones, Department of Spanish and Italian
Margaret E. W. Jones, Department of Spanish and Italian
John E. Keller, Department of Spanish and Italian, emeritus
John Lihani, Department of Spanish and Italian, emeritus
Noemi Lugo, School of Music
Thomas Nieman, Department of Horticulture and Landscape Architecture
Daniel R. Reedy, Department of Spanish and Italian
Kay R. Roberts, International Affairs
Susan Roberts, Department of Geography
Ramona R. Rush, Department of Communication
Gerardo Sáenz, Department of Spanish and Italian, emeritus
Edward F. Stanton, Department of Spanish and Italian
Grant W. Thomas, Department of Agronomy
Lourdes Torres, Department of Spanish and Italian
Klaus Utikal, Department of Statistics
H. Mac Vandiviere, Department of Pediatrics
Michael A. Webb, Department of Economics

## LINGUISTICS

Gregory T. Stump, chair

Anna Bosch, assistant professor of Linguistics & English, adviser
Barbara Kennedy, assistant professor of Linguistics & English, adviser
Thomas Olshewsky, professor of Philosophy, adviser
Jean Pival, associate professor emeritus of Linguistics & English, adviser
John Rea, associate professor emeritus of Linguistics & French, adviser
Sharon Shelly, assistant professor of Linguistics & French
Gregory T. Stump, associate professor of Linguistics & English, adviser
Lourdes Torres, associate professor of Linguistics & Spanish

## MATHEMATICS

Carl W. Lee, chair

David R. Adams, professor, Ph.D., Minnesota, 1969
Zhaojun Bai, assistant professor, Ph.D., Fudan/Maryland, 1987
James C. Beidleman, professor, Ph.D., Penn State, 1964
Bernard Bialecki, associate professor, Ph.D., Utah, 1987
James E. Brennan, professor, Ph.D., Brown, 1969
Russell Brown, associate professor, Ph.D., Minnesota, 1987
J. D. Buckholtz, professor, Ph.D., Texas, 1960

Richard W. Carey, professor, Ph.D., SUNY-Stony Brook, 1970
Thomas A. Chapman, professor, Ph.D., Louisiana State, 1970
Donald B. Coleman, professor, Ph.D., Purdue, 1961
Raymond H. Cox, associate professor, Ph.D., North Carolina, 1963
Paul M. Eakin, Jr., professor, Ph.D., Louisiana State, 1968
Carl Eberhart, professor, Ph.D., Louisiana State, 1966
Edgar Enochs, professor, Ph.D., Notre Dame, 1958
Michael Freeman, professor, Ph.D., California-Berkeley, 1965
Brauch Fugate, professor, Ph.D., Iowa, 1964
Ronald Gariepy, professor, Ph.D., Wayne State, 1969
Vassily Gorbounov, assistant professor, Ph.D., Novosibirsk University, Russia, 1986
Lawrence A. Harris, professor, Ph.D., Cornell, 1969
Thomas L. Hayden, professor, Ph.D., Texas, 1961
Kurt Helmes, associate professor, Ph.D., University of Bonn, 1976
Peter D. Hislop, associate professor, Ph.D., California-Berkeley, 1984
Henry C. Howard, professor, Ph.D., Carnegie-Mellon, 1958
David C. Johnson, professor, Ph.D., Virginia, 1970
Kenneth K. Kubota, professor, Ph.D., Facultes des Sciences de Paris, France, 1969
Carl Lee, professor, Ph.D., Cornell, 1981
Jon Lee, associate professor, Ph.D., Cornell, 1986
David Leep, associate professor, Ph.D., Michigan, 1980
John Lewis, professor, Ph.D., Illinois, 1970
Ren-Cang Li, assistant professor, Ph.D., California-Berkeley, 1995
John E. Mack, professor, Ph.D., Purdue, 1959
Chi-Sing Man, associate professor, Ph.D., Johns Hopkins, 1980
Robert Molzon, associate professor, Ph.D., Johns Hopkins, 1977
Karen R. Mortensen, associate professor, Ph.D., University of Chicago, 1989
Serge Ochanine, associate professor, Ph.D., University of Paris-Sud (Orsay), 1978
Peter Perry, professor, Ph.D., Princeton, 1981
Raymond Rishel, professor, Ph.D., Wisconsin, 1959
Avinash Sathaye, professor, Ph.D., Purdue, 1973
Ted J. Suffridge, professor, Ph.D., Kansas, 1965
Cliff Swauger, Jr., adjunct assistant professor, M.S., Kentucky, 1962
Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957
Chris Vancil, administrative officer, M.A., Murray State, 1974
James H. Wells, professor, Ph.D., Texas, 1958

## MILITARY SCIENCE

(Army ROTC)

Lieutenant Colonel Robert P. Farquhar, chair

Captain Thomas F. DeFilippo, assistant professor, B.S., U.S. Military Academy, 1986
Captain Brian L. Dutton, assistant professor, B.A., Tennessee, 1990
Lieutenant Colonel Robert P. Farquhar, professor, M.E., Georgia, 1986
Major Terry L. Wiant, assistant professor, M.B.A., Campbell, 1982

## PHILOSOPHY

Don Howard, chair

Susan Bordo, professor, Ph.D., SUNY at Stony Brook, 1982
J. Daniel Breazeale, professor, Ph.D., Yale, 1971
Ronald Bruzina, professor, Ph.D., Notre Dame, 1966; Doctorat de 3e cycle, Paris-Nanterre, France, 1970
Joan C. Callahan, professor, Ph.D., Maryland, 1982
James Force, professor, Ph.D., Washington University (St. Louis), 1977
Daniel H. Frank, associate professor, Ph.D., Pittsburgh, 1982
Dallas M. High, professor, Ph.D., Duke, 1964
Harmon R. Holcomb, III, associate professor, Ph.D., Wisconsin, 1984
Don Howard, professor, Ph.D., Boston University, 1979
E. Roger Jones, adjunct assistant professor, Ph.D., Chicago, 1976
Brandon C. Look, assistant professor, Ph.D., Chicago, 1995
Edward H. Madden, adjunct professor, Ph.D., Iowa, 1950
James W. Manns, professor, Ph.D., Boston University, 1971
Thomas M. Olshewsky, professor, Ph.D., Emory, 1965
Alan R. Perreiah, professor, Ph.D., Indiana, 1967
Henry A. S. Schankula, associate professor, Ph.D., Toronto, Canada, 1976
Theodore R. Schatzki, associate professor, Ph.D., California-Berkeley, 1986
Patricia G. Smith, associate professor, J.D., 1981; Ph.D., Arizona, 1982
Anita M. Superson, assistant professor, Ph.D., Illinois, Chicago, 1989

## PHYSICS AND ASTRONOMY

Kumble R. Subbaswamy, chair

Peter R. Almond,* professor, Ph.D., Rice, 1965
Suketu Bhavsar, associate professor, Ph.D., Princeton, 1978
Eugene B. Bradley,* professor of electrical engineering, Ph.D., Vanderbilt, 1964
Joseph Warren Brill, professor, Ph.D., Stanford, 1978
Michael Cavagnero, assistant professor, Ph.D., Chicago, 1987
John Ernest Christopher, associate professor, Ph.D., Virginia, 1967
John W. D. Connolly, professor, Ph.D., Florida, 1960
Marcel Coz, professor emeritus, D.Sc., Sorbonne, France, 1960
Daniel S. Dale, assistant professor, Ph.D., Illinois, 1991
Lance Eric DeLong, associate professor, Ph.D., California-San Diego, 1977
Terrence Draper, assistant professor, Ph.D., California-Los Angeles, 1984
Peter Clay Eklund, professor, Ph.D., Purdue, 1974
Moshe Elitzur, professor, Ph.D., Weizmann Institute, 1971
Gary J. Ferland, professor, Ph.D., Texas-Austin, 1978
Herbert A. Fertig, assistant professor, Ph.D., Harvard, 1988
Fletcher Gabbard, professor emeritus, Ph.D., Rice, 1959
Tim Paul Gorringe, assistant professor, Ph.D., Birmingham, 1984
David A. Harmin, associate professor, Ph.D., Chicago, 1981
Gerald P. Huffman,* professor of chemical engineering, Ph.D., West Virginia, 1965
Bernard Donald Kern, professor emeritus, Ph.D., Indiana, 1949
Michael A. Kovash, professor, Ph.D., Ohio State, 1978
Guy Walter Lehman, professor emeritus, Ph.D., Purdue, 1954
Bing-An Li, professor, Ph.D., Academia Sinica, China, 1968
Keh-Fei Liu, professor, Ph.D., SUNY at Stony Brook, 1975
Keith Bradford MacAdam, professor, Ph.D., Harvard, 1971
Alan Douglas MacKellar, professor, Ph.D., Texas A&M, 1966
Nicholas L.S. Martin, associate professor, Ph.D., Oxford, 1977
Marcus T. McEllistrem, professor emeritus, Ph.D., Wisconsin, 1956
Kwok-wai Ng, assistant professor, Ph.D., Iowa State, 1986
Alfred D. Shapere, assistant professor, Ph.D., California-Santa Barbara, 1988
Isaac Shlosman, assistant professor, Ph.D., Tel Aviv, 1986
Kumble R. Subbaswamy, professor, Ph.D., Indiana, 1976
Thomas H. Troland, associate professor, Ph.D., California-Berkeley, 1980
Clasine van Winter,* professor, Ph.D., Groningen, The Netherlands, 1957
Jesse L. Weil, professor, Ph.D., Columbia, 1959
Valdis J. Zeps, Jr., assistant professor, Ph.D., Washington, 1989

*adjunct or joint appointment

## POLITICAL SCIENCE

Karen A. Mingst, chair

Yao E. Aziabu, assistant professor, Ph.D., Duke, 1995
Horace A. Bartilow, assistant professor, Ph.D., SUNY-Albany, 1994
Bradley C. Canon, professor, Ph.D., Wisconsin, 1967
B. Vincent Davis, professor, Ph.D., Princeton, 1961
Charles L. Davis, associate professor, Ph.D., Kentucky, 1974
Herbert N. Drennon, professor emeritus, Ph.D., Duke, 1951
Matthew Gabel, assistant professor, Ph.D., Rochester, 1994
George H. Gadbois, professor emeritus, Ph.D., Duke, 1965
Donald A. Gross, associate professor, Ph.D., Iowa, 1976
Gregory L. Hager, assistant professor, North Carolina, 1995
Chi Huang, associate professor, Ph.D., Indiana, 1986
Cynthia Irvin, assistant professor, Ph.D., Duke, 1993
Edward T. Jennings, Jr.,* associate professor, Ph.D., Washington University, 1977
Malcolm E. Jewell, professor emeritus, Ph.D., Penn State, 1958
Stuart J. Kaufman, assistant professor, Ph.D., Michigan, 1991
Penny Miller, assistant professor, Ph.D., Kentucky, 1986
Karen A. Mingst, professor, Ph.D., Wisconsin, 1974
Chung In Moon, associate professor, Ph.D., Maryland, 1984
Mark A. Peffley, associate professor, Ph.D., Minnesota, 1984
Herbert G. Reid, professor, Ph.D., North Carolina, 1968
Ellen D. Riggle, assistant professor, Ph.D., Illinois, 1990
Phillip Roeder, associate professor, Ph.D., Florida State, 1973
Jennifer Segal, assistant professor, Ph.D., Ohio State, 1995
John D. Stempel,* professor, Ph.D., California-Berkeley, 1965
S. Sidney Ulmer, professor emeritus, Ph.D., Duke, 1956
Ernest Yanarella, professor, Ph.D., North Carolina, 1971

* joint appointment

## PSYCHOLOGY

Michael T. Nietzel, chair

Billie S. Ables,* professor emeritus, Ph.D., Purdue, 1954
Michael A. Andrykowski,* associate professor, Ph.D., Illinois, 1984
Ruth A. Baer, associate professor, Ph.D., West Virginia, 1985
Michael T. Bardo, professor, Ph.D., Iowa State, 1980
Susan Barron, assistant professor, Ph.D., SUNY-Albany, 1987
Philip K. Berger,* professor, Ph.D., Texas Christian, 1969
David T. R. Berry, associate professor, Ph.D., Florida, 1985
Ramesh S. Bhatt, assistant professor, Ph.D., Iowa, 1988
Gregory W. Brock,* associate professor, Ph.D., Penn State, 1978
Charles R. Carlson, associate professor, Ph.D., Vanderbilt, 1983
C. Melody Carswell, associate professor, Ph.D., Illinois, 1988

Zhe Chen, assistant professor, Ph.D., Massachusetts, 1990
Jonathan M. Golding, associate professor, Ph.D., Denver, 1986
John V. Haley,* professor, Ph.D., Loyola, 1963
Dianna E. Hartley,* adjunct assistant professor, Ph.D., Vanderbilt, 1978
Rick H. Hoyle, associate professor, Ph.D., North Carolina, 1988
Mitzi M.S. Johnson,* assistant professor, Ph.D., Ohio State, 1986
Monica J. Kern, associate professor, Ph.D., Harvard, 1987
Philipp J. Kraemer, associate professor, Ph.D., Western Ontario, 1982
Elizabeth P. Lorch, associate professor, Ph.D., Massachusetts, 1981
Robert F. Lorch, Jr., associate professor, Ph.D., Massachusetts, 1980
Donald R. Lynam, Jr., assistant professor, Ph.D., Wisconsin-Madison, 1995
Donald F. McCoy, Jr., associate professor, Ph.D., Missouri, 1966
James A. McCubbin,* associate professor, Ph.D., North Carolina, 1980
William J. Meegan,* adjunct assistant professor, Ph.D., Kentucky, 1975
Richard S. Milich, professor, Ph.D., Washington University, St. Louis, 1976
Thomas W. Miller,* professor, Ph.D., SUNY-Buffalo, 1971
Margo J. Monteith, assistant professor, Ph.D., Wisconsin-Madison, 1991
John R. Neill,* associate professor, Ph.D., Maryland, 1973
T. Kerby Neill,* adjunct assistant professor, Ph.D., Catholic University, 1968
Michael T. Nietzel, professor, Ph.D., Illinois, 1973
Arthur J. Nonneman,* adjunct professor, Ph.D., Florida, 1970
James C. Norton, * associate professor, Ph.D., Arizona, 1970
Donald E. Ralph, * professor, Ph.D., Catholic University of America, 1965
John D. Ranseen,* associate professor, Ph.D., Ohio, 1982
Milton Rosenbaum, * adjunct professor, M.D., Cincinnati, 1934
Frederick A. Schmitt,* associate professor, Ph.D., Akron, 1982
Arthur L. Shechet,* adjunct assistant professor, Ph.D., Kentucky, 1987
Gregory T. Smith, associate professor, Ph.D., Wayne State, 1985
Richard Smith, associate professor, Ph.D., North Carolina-Chapel Hill, 1985
Ronald D. Taylor, associate professor, Ph.D., Texas Christian, 1981
Martha W. Wetter, assistant professor, Ph.D., Kentucky, 1984
Thomas A. Widiger, professor, Ph.D., Miami (Ohio), 1981
John F. Wilson,* associate professor, Ph.D., Michigan, 1977
Thomas R. Zentall, professor, Ph.D., California-Berkeley, 1969
James F. Zolman,* professor, Ph.D., California-Berkeley, 1963

*joint or adjunct appointment

### RUSSIAN AND EASTERN STUDIES

Gerald Janecek, chair

Roger Anderson, professor, Ph.D., Michigan, 1967
Gerald Janecek, professor, Ph.D., Michigan, 1972
Edward S. Lee, associate professor, Ph.D., Pittsburgh, 1976
Jeanmarie Rouhier-Willoughby, assistant professor, Ph.D., Virginia, 1992
Cynthia A. Ruder, assistant professor, Ph.D., Cornell, 1987
Leon Zolondek, professor emeritus, Ph.D., Chicago, 1957

### SOCIOLOGY

James G. Hougland, Jr., chair

Walter Abbott, professor, Ph.D., Washington, 1969
Joanne Badagliacco, assistant professor, Ph.D., Columbia, 1987
Howard Beers, professor emeritus, Ph.D., Cornell, 1935
Dwight Billings, professor, Ph.D., North Carolina, 1976
Kathleen Blee, professor, Ph.D., Wisconsin, 1982
Robert L. Brannon, assistant professor, Ph.D., California-Berkeley, 1988
James S. Brown, professor emeritus, Ph.D., Harvard, 1950
Larry Burmeister, associate professor, Ph.D. Cornell, 1984
Richard R. Clayton, professor, Ph.D., Tennessee, 1972
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor emeritus, Ph.D., Missouri, 1953
Alan DeYoung, professor, Ph.D., Stanford, 1975
Patricia Dyk, assistant professor, Ph.D., Utah State, 1990
Richard Edwards, professor, Ph.D., Harvard, 1972
Thomas R. Ford, professor emeritus, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Lorraine Garkovich, professor, Ph.D., Missouri, 1976
Thomas F. Garrity, professor, Ph.D., Duke, 1971
Thomas Greider, associate professor, Ph.D., Utah State, 1986
Gary L. Hansen, associate professor, Ph.D., Iowa, 1978
Rosalind Harris, assistant professor, Ph.D., Pennsylvania State, 1990
Laurie R. Hatch, associate professor, Ph.D., University of Washington, 1986
James G. Hougland, Jr., professor, Ph.D., Indiana, 1975
Scott A. Hunt, assistant professor, Ph.D., Nebraska, 1991
Ronald Hustedde, assistant professor, Ph.D., Wisconsin, 1989
Thomas Ilvento, associate extension professor, Ph.D., Penn State, 1985
William F. Kenkel, post-professor, Ph.D., Ohio State, 1952
Richard C. Maurer, professor, Ph.D., Ohio State, 1977
Patrick Mooney, associate professor, Ph.D., Wisconsin, Madison, 1984
Pamela Wilcox Rountree, assistant professor, Ph.D., Duke, 1994
Scott Samson, assistant professor, Ph.D., Nebraska, 1988
Shaunna L. Scott, assistant professor, Ph.D., California-Berkeley, 1988
William F. Skinner, associate professor, Ph.D., Iowa, 1984
Gerald T. Slatin, associate professor, Ph.D., Indiana, 1967
Willis A. Sutton, Jr., professor emeritus, Ph.D., North Carolina, 1952
Louis E. Swanson, Jr., professor, Ph.D., Penn State, 1982
Clarence R. Talley, assistant professor, Ph.D., Maryland, 1989
Ann R. Tickamyer, professor, Ph.D., North Carolina, 1979
Barbara D. Warner, assistant professor, Ph.D., SUNY, 1989
Paul Warner, extension professor, Ph.D., Ohio State, 1973
Doris Wilkinson, professor, Ph.D., Case Western, 1968
Rick Zimmerman, associate professor, Ph.D., Wisconsin, 1983

### SPANISH AND ITALIAN LANGUAGES AND LITERATURES

Anibal A. Biglieri, chair

John J. Allen, professor, Ph.D., Wisconsin, 1960
Anibal A. Biglieri, associate professor, Ph.D., Syracuse, 1982
Jerome C. A. Branche, assistant professor, Ph.D., New Mexico, 1995
Susan de Carvalho, assistant professor, Ph.D., Virginia, 1989
Brian J. Dendle, professor, Ph.D., Princeton, 1966
Roberto J. Gonzalez-Casanovas, associate professor, Ph.D., Harvard, 1990
Stephen Hart, associate professor, Ph.D., Cambridge, 1985
Michael Impey, associate professor, Ph.D., Michigan State, 1970
Joseph R. Jones, professor, Ph.D., Wisconsin, 1962
Margaret E. W. Jones, professor, Ph.D., Wisconsin, 1963
John E. Keller, professor emeritus, Ph.D., North Carolina, 1946
John Lihani, professor emeritus, Ph.D., Texas, 1954
Luisa C. Perez, assistant professor, Ph.D., Kansas, 1994
Daniel R. Reedy, professor, Ph.D., Illinois, 1962
Gerardo Sáenz, professor emeritus, Ph.D., Texas, 1959
Edward Stanton, professor, Ph.D., California, Los Angeles, 1972
Lourdes Torres, assistant professor, Ph.D., Illinois, 1988

### STATISTICS

Richard J. Kryscio, chair

Debra K. Aaron,* associate professor, Ph.D., Oklahoma State, 1984
David M. Allen, professor, Ph.D., North Carolina State, 1968
Richard L. Anderson, professor emeritus, Ph.D., Iowa State, 1941
Vasant P. Bhapkar, professor, Ph.D., North Carolina, 1959
Steven M. Butler,* assistant professor, Ph.D., California-Santa Barbara, 1989
Paul L. Cornelius,* professor, Ph.D., Illinois, 1972
Zakkula Govindarajulu, professor, Ph.D., Minnesota, 1961
William Griffith, associate professor, Ph.D., Pittsburgh, 1979
Richard J. Kryscio, professor, Ph.D., SUNY at Buffalo, 1971
Subathra Ramanathan, assistant professor, Ph.D., California-Santa Barbara, 1991
William S. Rayens, associate professor, Ph.D., Duke, 1986
Cidambi Srinivasan, professor, Ph.D., Indian Statistical Institute, 1979
Richard Stockbridge, associate professor, Ph.D., Wisconsin, 1987
Arnold J. Stromberg, assistant professor, Ph.D., North Carolina, 1989
Constance L. Wood, associate professor, Ph.D., Florida State, 1975
Mai Zhou, associate professor, Ph.D., Columbia, 1986

*joint appointment

## COLLEGE OF BUSINESS AND ECONOMICS

Richard W. Furst, dean

### SCHOOL OF ACCOUNTANCY

#### ACCOUNTING

Stuart B. Keller, director

Myrtle W. Clark, associate professor, Ph.D., South Carolina, 1978; CMA
Jean C. Cooper, associate professor, Ph.D., North Carolina, 1985
W. W. Ecton, professor, Ph.D., Missouri, 1966; CPA
Daniel L. Fulks, associate professor, Ph.D., Georgia State, 1980; CPA
Sally Furze, assistant professor, Ph.D., Oregon, 1993; CPA
Arthur H. Goldman, assistant professor, M.B.A., Wisconsin, 1988; CPA
James R. Holmes, associate professor, Ph.D., Missouri, 1977; CPA
David Hulse, assistant professor, Ph.D., Penn State, 1992
Stuart B. Keller, associate professor, Ph.D., North Carolina, 1982
James A. Knoblett, professor, Ph.D., Washington, 1963
Donald L. Madden, professor, Ph.D., Texas, 1967; CPA, CMA
Clyde Douglas Poe, associate professor, Ph.D., Texas A&M, 1986
Thomas Pope, associate professor, D.B.A., Kentucky, 1976; CPA
Robert J. Ramsay, assistant professor, Ph.D., Indiana, 1991; CPA
Michael G. Tearney, associate dean, professor, Ph.D., Missouri, 1971; CPA
Relmond P. VanDaniker, professor, D.B.A., Maryland, 1970; CPA

Ralph Viator, associate professor, Ph.D., Texas A&M, 1986; CPA
Jane B. Wells, associate professor, M.S., Kentucky, 1986; CPA

### ECONOMICS

William J. Stober, area coordinator

Mukhtar M. Ali, professor, Ph.D., Wisconsin, 1969
Mark C. Berger, professor, Ph.D., Ohio State, 1981
Dan A. Black, professor, Ph.D., Purdue, 1983
Glenn C. Blomquist*, professor, Ph.D., Chicago, 1977
Carl Cabe, professor emeritus, Ph.D., Illinois, 1952
Carlos C. Erwin, associate professor emeritus, Ph.D., Illinois, 1952
James S. Fackler, professor, Ph.D., Indiana, 1977
John E. Garen, associate professor, Ph.D., Ohio State, 1982
Richard E. Gift, professor, Ph.D., Duke, 1965
J. Robert Gillette, associate professor, Ph.D., Texas A&M, 1986
H. W. Hargreaves, professor emeritus, Ph.D., Duke, 1941
Curtis E. Harvey, professor, Ph.D., Southern California, 1963
Gail Mitchell Hoyt, assistant professor, Ph.D., Kentucky, 1992
William H. Hoyt, associate professor, Ph.D., Wisconsin, 1986
Charles W. Hultman, professor, Ph.D., Iowa, 1960
Richard A. Jensen, professor, Ph.D., Northwestern, 1980
Yoonbai Kim, associate professor, Ph.D., Stanford, 1987
Joseph Krislov, professor, Ph.D., Wisconsin, 1954
John L. Madden, associate professor, Ph.D., Kansas State, 1968
James R. Marsden*, professor, Ph.D., Purdue, 1970
L. Randolph McGee, extension professor, Ph.D., Tulane, 1963
David F. Ross, associate professor emeritus, Ph.D., Harvard, 1956
Frank A. Scott, Jr., associate professor, Ph.D., Virginia, 1979
Don M. Soule, professor emeritus, Ph.D., Wisconsin, 1953
William J. Stober*, professor, Ph.D., Duke, 1965
Robert H. Stroup, professor emeritus, Ph.D., Iowa, 1953
Eugenia F. Toma*, professor, Ph.D., Virginia Polytechnic Institute, 1977
Mark Toma, associate professor, Ph.D., Virginia Polytechnic Institute, 1977
Sharmila Vishwasrao, assistant professor, Ph.D., Purdue, 1991
Weiren Wang, assistant professor, Ph.D., Southern California, 1990
Michael A. Webb, professor, Ph.D., Illinois, 1980

*joint appointment

## SCHOOL OF MANAGEMENT

Fred W. Morgan, director

### DECISION SCIENCE AND INFORMATION SYSTEMS

John J. Bernardo, professor, Ph.D., Purdue, 1972
Chen-Hua Chung, professor, Ph.D., Ohio State, 1982
Chon-Huat Goh, assistant professor, Ph.D., Texas at Austin, 1991
Clyde W. Holsapple, professor, Ph.D., Purdue, 1977
Albert L. Lederer, professor, Ph.D., Ohio State, 1983
Anita Lee-Post, assistant professor, Ph.D., Iowa, 1990
James R. Marsden, professor, Ph.D., Purdue, 1970
R. Pakath, associate professor, Ph.D., Purdue, 1988

### FINANCE

Michael D. Carpenter, associate professor, Ph.D., Arizona State, 1976
I. Keong Chew, associate professor, Ph.D., South Carolina, 1977
Paul D. Childs, assistant professor, Ph.D., Wisconsin, 1995
Richard W. Furst, professor, D.B.A., Washington, 1968
Merlin M. Hackbart, professor, Ph.D., Kansas State, 1968
Charles F. Haywood, professor, Ph.D., California, 1955
Keith H. Johnson, professor, Ph.D., Illinois, 1970
Donald J. Mullineaux, professor, Ph.D., Boston College, 1971
Dennis T. Officer, associate professor, Ph.D., Arkansas, 1979
Steve H. Ott, assistant professor, Ph.D., Wisconsin, 1992
Leonard J. Schneck, assistant professor, Ph.D., Carnegie-Mellon, 1995

### MANAGEMENT

Terry Amburgey, associate professor, Ph.D., Stanford, 1982
Mark A. Davis, associate professor, Ph.D., Virginia Polytechnic, 1984
Walter Ferrier, assistant professor, Ph.D., Maryland, 1995
Timothy B. Folta, assistant professor, Ph.D., Purdue, 1994
James W. Freeman, associate professor, L.L.M., Harvard, 1978
James L. Gibson, professor, Ph.D., Kentucky, 1962
Andrew Grimes, professor, D.B.A., Minnesota, 1969
Nancy Brown Johnson, associate professor, Ph.D., Kansas, 1987
Chamundeswari Sundaramurthy, assistant professor, Ph.D., Illinois, 1992
Bennett J. Tepper, assistant professor, Ph.D., Miami, 1990

### MARKETING

Robert Dahlstrom, assistant professor, Ph.D., Cincinnati, 1990
James H. Donnelly, Jr., professor, D.B.A., Maryland, 1968
Brien Ellis, assistant professor, Ph.D., Alabama, 1990
Jule Gassenheimer, associate professor, Ph.D., Alabama, 1989
Diane Halstead, assistant professor, Ph.D., Michigan State, 1990
William Keep, assistant professor, Ph.D., Michigan State, 1991
Scott Kelley, associate professor, D.B.A., Kentucky, 1987
Fred W. Morgan, professor, Ph.D., Michigan State, 1972
Steven J. Skinner, professor, D.B.A., Kentucky, 1983
Kelly Tepper, assistant professor, Ph.D., Georgia State, 1991
Tommy E. Whittler, associate professor, Ph.D., Purdue, 1985

## COLLEGE OF COMMUNICATIONS AND INFORMATION STUDIES

Douglas A. Boyd, dean

### COMMUNICATION

James L. Applegate, chair

James L. Applegate, professor, Ph.D., Illinois, 1977
John R. Baseheart, associate professor, Ph.D., Michigan State, 1969
Robert N. Bostrom, professor, Ph.D., Iowa, 1961
Douglas A. Boyd,* professor, Ph.D., Minnesota, 1972
Harold L. Bronson, assistant professor, Ph.D., Florida State, 1992
Alan D. DeSantis, assistant professor, Ph.D., Indiana, 1993
R. Lewis Donohew, professor, Ph.D., Iowa, 1965
Nancy Grant Harrington, assistant professor, Ph.D., Kentucky, 1992
Joachim Knuf, associate professor, Ph.D., Oxford, England, 1986
Philip C. Palmgreen, professor, Ph.D., Michigan, 1975
J. W. Patterson, associate professor, Ph.D., Oklahoma, 1960
Carrie Pierce-Jones, assistant professor, Ph.D., Bowling Green State, 1985
Ramona R. Rush, professor, Ph.D., Wisconsin, 1969
G. Norman Van Tubergen, associate professor, Ph.D., Iowa, 1968
Enid Waldhart, associate professor, Ph.D., Indiana, 1975

### SCHOOL OF JOURNALISM AND TELECOMMUNICATIONS

Roy L. Moore, acting director

Douglas A. Boyd,* professor, Ph.D., Minnesota, 1972
Maria Braden Clark, professor, B.A., McGill, Canada, 1968
David B. Dick, associate professor, M.A., Kentucky, 1964
Andrew Finn, associate professor, Ph.D., Washington, St. Louis, 1983
James Hertog, associate professor, Ph.D., Minnesota, 1989
Cindy Hosbein, assistant professor, M.A., Ohio, 1991
Thomas R. Lindlof, associate professor, Ph.D., Texas, 1980
Carmen Manning-Miller, assistant professor, Ph.D., Indiana, 1989
Roy L. Moore, professor, Ph.D., Wisconsin, 1974; J.D., Georgia State, 1986
Robert L. Orndorff, associate professor, A.B., Kentucky, 1961
Nancy Reynolds, assistant professor, Ph.D. candidate, Wisconsin-Madison, 1991
Joseph M. Ripley, professor emeritus, Ph.D., Ohio State, 1961
Richard L. Roth, assistant professor, B.A., Wisconsin, 1969
Leland "Buck" Ryan, associate professor, M.A., Missouri-Columbia, 1990
S. Scott Whitlow, associate professor, Ph.D., Southern Illinois, 1975

*joint appointment

### SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Thomas J. Waldhart, director

Donald Case, professor, Ph.D., Stanford, 1984
Lois M. Chan, professor, Ph.D., Kentucky, 1970
Susan A. Cooper, assistant professor, Ph.D., Cincinnati, 1991
Michael H. Harris, professor, Ph.D., Indiana, 1970
Ling Hwey Jeng, assistant professor, Ph.D., Texas-Austin, 1987
Xia Lin, assistant professor, Ph.D., Maryland, 1993
Anne Y. McConnell, associate professor emeritus, C.A.S., Illinois, 1978
JoAnn V. Rogers, professor, Ph.D., Pittsburgh, 1977
Donna Shannon, assistant professor, Ph.D., North Carolina-Chapel Hill, 1993
Timothy W. Sineath, professor, Ph.D., Illinois, 1970
Joy Terhune, associate professor emeritus, Ed.S., George Peabody, 1977
Thomas J. Waldhart, associate professor, Ph.D., Indiana, 1973

# COLLEGE OF DENTISTRY

David A. Nash, dean

## DEPARTMENT OF ORAL HEALTH PRACTICE

Thomas P. Mullaney, chair

John E. Lindroth assistant professor (part-time), D.D.S., West Virginia, 1977; Fellowship, Orofacial Pain, Kentucky, 1992
Kevin I. Reid, assistant professor, D.M.D., Kentucky, 1988; M.S., Temporomandibular Disorders and Orofacial Pain, Minnesota, 1990
James R. Thompson, assistant professor, D.M.D., Kentucky, 1978
Alan D. Wilkinson, assistant professor (part-time), D.M.D., Louisville, 1973; Fellowship, Orofacial Pain, Kentucky, 1991

### Section on Endodontics

Roland C. Duell, section leader

Johnny G. Cailleteau, associate professor, M.S.M.E., Georgia Tech, 1974; D.D.S., Texas, 1982; M.S., Texas, 1989
Roland C. Duell, professor, D.D.S., Ohio State, 1963; M.S., Iowa, 1967
William E. Hampton, assistant professor (part-time), D.M.D., Kentucky, 1990
Thomas P. Mullaney, professor, D.D.S., Loyola, 1961; M.S.D., Indiana, 1965
R. Keith Mullins, associate professor (part-time), D.M.D., Kentucky, 1972, Cert., Endo., Kentucky, 1976
Paul T. Wehrman, assistant professor (part-time), D.M.D., Kentucky, 1973; Cert. Endo., Pittsburgh, 1978

### Section on Oral and Maxillofacial Surgery

Matthew B. Hall, section leader

Emmett R. Costich, professor emeritus, D.D.S., Pennsylvania, 1945; Cert. Oral Surgery, Strong Memorial Hospital, University of Rochester, 1947; Ph.D., Rochester, 1954
Jeffrey B. Dembo, associate professor, D.D.S., Northwestern, 1981; M.S., Oral and Maxillofacial Surgery, Iowa, 1984
Arthur A. Gonty, associate professor, D.D.S., Marquette, 1968; Cert. Oral and Maxillofacial Surgery, Ohio State, 1974
Matthew B. Hall, professor, D.D.S., UCLA, 1971; Cert., Oral and Maxillofacial Surgery, Montefiore Hospital, 1975; M.D., Hahnemann University, 1977
Robert D. Marciani, professor, D.M.D., New Jersey, 1966; Cert. Oral and Maxillofacial Surgery, Veterans Hospital, Allen Park, Michigan, 1971

### Section on Orthodontics

E. Preston Hicks, section leader

Cynthia S. Beeman, assistant professor, D.D.S., Case Western, 1981; Ph.D., Connecticut, 1989; Cert., Ortho., Connecticut, 1989
Melvin W. Dean, assistant professor (part-time), D.M.D., Kentucky, 1977; Cert., Ortho., Kentucky, 1979
E. Preston Hicks, associate professor, D.D.S., North Carolina, 1966; M.S., Pedo., North Carolina, 1969; M.S.D., Ortho., Washington, 1976
G. Thomas Kluemper, assistant professor, D.M.D., Kentucky, 1983; M.S., Ortho., Michigan, 1991
Charles E. Pritchett, assistant professor (part-time), D.D.S., Indiana, 1967; Cert., Ortho., Kentucky, 1970; M.S.D., Kentucky, 1974
C. Michael Stansbury, assistant professor (part-time), D.M.D., Kentucky, 1976; M.S., Kentucky, 1976; Cert., Ortho., Kentucky, 1979
J. Philip Wahle, assistant professor (part-time), D.M.D., Kentucky, 1990; M.S. and Cert., Ortho., Kentucky, 1993

### Section on Pediatric Dentistry

Gerald A. Ferretti, section leader

Wayne W. Collier, professor (part-time), D.M.D., Louisville, 1952
Gerald Ferretti, professor, D.D.S., Georgetown, 1976; M.S.D. Connecticut, 1980; Cert., Pedo., Connecticut, 1980
Milton E. Gellin, professor emeritus, D.D.S., Western Reserve, 1946
Jenny Lou Ison, clinical assistant professor, D.M.D., Kentucky, 1984; Cert. Pedo., Indiana, 1987
Frank Kendrick, assistant professor, D.M.D., Kentucky, 1990; GPR, Kentucky, 1992; Cert. and M.S., Pedo., Ohio State, 1994
John R. Mink, professor, D.D.S., Indiana, 1956; M.S.D., Indiana, 1961
Caroline S. Moody, assistant professor (part-time), D.M.D., Kentucky, 1983; Cert., Pedo., Kentucky, 1986
David A. Nash, professor, D.M.D., Kentucky, 1968; M.S., Pedo., Iowa, 1970; Ed.D., West Virginia, 1984
Robert H. Spedding, professor, D.D.S., Indiana, 1960; M.S.D., Indiana, 1963
Angela Templeton Downs, clinical assistant professor, D.D.S., Tennessee, 1990; Cert., Pedo., Kentucky, 1992
Erwin G. Turner, associate professor (part-time), D.M.D., Kentucky, 1974; Cert., Pedo. Dent., Kentucky, 1976

### Section on Periodontics

Merrill W. Packer, section leader

Herbert Abrams, associate professor, D.D.S., Temple, 1958; M.S., Ohio State, 1966
Garnett C. Brown, III, assistant professor (part-time), D.M.D., Kentucky, 1989
Ershal Harrison, assistant professor (part-time), D.M.D., Kentucky, 1981
Leslie Horn, assistant professor (part-time), D.M.D., Kentucky, 1985; Cert., Perio., Kentucky, 1992
Samuel J. Jasper, Jr., associate professor, D.D.S., Ohio State, 1976; M.S., Ohio State, 1980
Leo I. Kupp, assistant professor, D.D.S., Ohio State, 1987; Ph.D., Perio., Medical College of Virginia, 1992
Keith J. Lemmerman, assistant professor (part-time), D.M.D., Kentucky, 1974; Cert., Perio., Kentucky, 1976
Merrill W. Packer, professor emeritus, D.D.S., Minnesota, 1959; M.S.D., Minnesota, 1964
Lloyd Parmley, assistant professor (part-time), D.M.D., Kentucky, 1973; Cert., Perio., Kentucky, 1981
Stanley R. Saxe, professor, D.M.D., Harvard, 1958; M.S.D., Washington, 1960

### Section on Prosthodontics

Behruz J. Abadi, section leader

Behruz J. Abadi, associate professor, D.M.D., Istanbul, Turkey, 1972; Cert. Prosth., Eastman Dental Center, Rochester, 1976
Timothy M. Armentrout, assistant clinical professor, D.M.D., Kentucky, 1982
Evelyn P. Clark, assistant professor, D.M.D., Louisville, 1986; GPR, Kentucky, 1988; Cert., Prosth., Baylor, 1993
John T. Dominici, assistant professor, D.D.S., Illinois, 1983; Cert., Prosth., Marquette, 1988
Charles W. Ellinger, professor, D.D.S., Ohio State, 1959; M.S., Ohio State, 1965
H. Edward Lyon, associate professor emeritus, D.D.S., Indiana, 1959
Rex P. McCrary, assistant professor (part-time), D.M.D., Kentucky, 1990
Ted P. Raybould, assistant professor, D.M.D., Kentucky, 1981
Steven J. Swintosky, assistant professor (part-time), D.M.D., Kentucky, 1985
Kenneth L. Tharp, assistant professor (part-time), D.M.D., Louisville, 1957
Robert C. Wesley, associate professor emeritus, D.M.D., Louisville, 1954

### Section on Restorative Dentistry

Donald C. Reel, section leader

Larry C. Breeding, associate professor, D.M.D., Kentucky, 1979; M.S.Ed., Kentucky, 1983; Cert., Fixed Pros./Perio., Medical College of Georgia, 1985
J. David Hardison, professor, D.M.D., Kentucky, 1980
Howard Higgins, assistant professor (part-time), D.M.D., Kentucky, 1975
John T. Kemper, associate professor, D.M.D., Kentucky, 1976
Keith E. Kinderknecht, assistant professor, D.M.D., Kentucky, 1971; Prosth., U.S. Naval Dental Clinic, Bethesda, 1990
Robert E. Kovarik, associate professor, D.M.D., Kentucky, 1982; M.S., Medical College of Georgia, 1991
Harold R. Laswell, professor, D.D.S., Indiana, 1961; M.S.D., Indiana, 1966
Thomas A. McConnell, clinical assistant professor, D.D.S., University of the Pacific, 1977
Susan A. McEvoy, associate professor, D.M.D., Kentucky, 1968; M.S., Ohio, 1971
Fred E. Meece, assistant professor (part-time), D.M.D., Kentucky, 1968
Jeffrey P. Okeson, professor, D.M.D., Kentucky, 1972
Deborah S. Ray, assistant professor (part-time), D.M.D., Kentucky, 1987; G.P.R., Kentucky, 1988
Donald C. Reel, associate professor, D.D.S., Tennessee, 1957; Cert., Perio., Kentucky, 1970
Stephen P. Selwitz, assistant professor (part-time), D.M.D., Kentucky, 1975
Lou P. Sievers, assistant professor (part-time), D.M.D., Kentucky, 1991
T. Milton Skeeters, associate professor, D.M.D., Kentucky, 1968; GPR, Kentucky, 1989
Charles A. Thomas, associate professor, D.M.D., Kentucky, 1977; Cert., Geriatrics, Duke, 1991
James H. Timmons, associate professor, D.D.S., Detroit, 1969; M.S.Ed., Kentucky, 1983
Charles S. Vose, assistant professor (part-time), D.M.D., Kentucky, 1977
Karen P. West, assistant professor, D.M.D., Louisville, 1982; G.P.R., Medical College of Georgia, 1983
Loren N. Williams, assistant professor (part-time), D.M.D., Kentucky, 1978
Russell T. Williamson, assistant professor, D.M.D., Kentucky, 1975; Cert., Fixed Partial Prosth., Illinois, 1977

## DEPARTMENT OF ORAL HEALTH SCIENCE

Thomas T. Lillich, associate dean and chair

Albert T. Brown, professor, (joint appt., Biochemistry, College of Medicine), Ph.D., Vanderbilt, 1968
Robert B. Calmes, Jr., associate professor, (joint appt., Micro and Immunology, College of Medicine), Ph.D., West Virginia, 1972
C. Lawrence Chiswell, assistant professor (adjunct series), D.M.D., Kentucky, 1972
Thomas M. Cooper, professor emeritus, D.D.S., Tennessee, 1956
William K. Elwood, associate professor emeritus, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Patricia E. Rippetoe Freeman, instructor (part time; joint appt., College of Nursing), Ph.D., Kentucky, 1991
Alan A. Kaplan, associate professor (adjunct series), Ph.D., Kentucky, 1975
Charlotte S. Kaetzel, associate professor (joint appt., Pathology, College of Medicine), Ph.D., Maryland, 1979
Gene P. Lewis, associate professor (part-time), D.D.S., Baylor, 1961; M.P.H., Michigan, 1969
Thomas T. Lillich, professor, Ph.D., North Carolina State, 1970
James L. Matheny, professor, (joint appt., Pharmacology, College of Medicine), Ph.D., Mississippi, 1971
Richard J. Mitchell, associate professor, Ph.D., Virginia, 1975
M. Raynor Mullins, associate professor, D.M.D., Kentucky, 1968; M.P.H., North Carolina, 1970
Michael T. Romano, professor emeritus, D.D.S., Temple, 1947
Gerald I. Roth, professor emeritus, D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969
Patrick J. Sammon, associate professor, (joint appt., Physiology, College of Medicine), Ph.D., Louisville, 1968
Stanley R. Saxe, professor, D.M.D., Harvard, 1958; M.S.D., Washington, 1960
Pamella P. Shaw, assistant professor (adjunct series), D.M.D., Kentucky, 1991
Timothy A. Smith, professor, (joint appt., Behavioral Sciences, College of Medicine), Ph.D., North Carolina, 1963
Eric E. Spohn, professor, D.D.S., Michigan, 1969
David B. Webster, Jr., associate professor, D.D.S., Virginia Commonwealth, 1969; M.P.H., North Carolina, 1971

### Section on Oral Diagnosis

Donald A. Falace, section leader

George Brown, Jr., assistant professor (part-time), D.M.D., Kentucky, 1993
Donald A. Falace, professor, D.M.D., Kentucky, 1970; Cert. Oral Surgery, North Carolina, 1975
Craig S. Miller, assistant professor, D.M.D., Kentucky, 1982; Cert., G.P.R., USAF, 1983; M.S., Texas-San Antonio, 1987
Harry E. Moore, associate professor emeritus, D.M.D., Louisville, 1952
Sherry Parlanti, assistant professor (part-time), D.M.D., Kentucky, 1991
Richard Rubeling, assistant professor (part-time), D.M.D., Kentucky, 1978
Kevin C. Stephens, assistant professor (part-time), D.M.D., Kentucky, 1993; G.P.R., Kentucky, 1994
B. Lynn Theiss, assistant clinical professor, D.M.D., Kentucky, 1986; G.P.R., Kentucky 1988; M.S.D., Geriatric Dental Fellowship, Kentucky, 1991

### Section on Oral Pathology

Dean K. White, section leader

Douglas D. Damm, associate professor, D.D.S., Louisiana State, 1977; Cert. Oral Pathology, Emory, 1979
James F. Drummond, professor, D.D.S., St. Louis, 1963; M.D.D., St. Louis, 1966; Ph.D., St. Louis, 1970
Dean K. White, professor, D.D.S., Missouri, 1970; M.S.D., Indiana, 1972

# COLLEGE OF EDUCATION

Shirley Raines, dean

## ADMINISTRATION AND SUPERVISION

Eddy J. Van Meter, chair

Patricia Dardaine-Ragguet, assistant professor, Ph.D., Cleveland State, 1992
Fred Edmonds, professor emeritus, Ed.D., Kentucky, 1961
Fenwick W. English, professor, Ph.D., Arizona, 1972
Charles F. Faber, professor emeritus, Ph.D., Chicago, 1961
J. John Harris III, professor, Ph.D., Michigan, 1972
James B. Kincheloe, professor emeritus, Ph.D., Peabody, 1954
Jane Clark Lindle, associate professor, Ph.D., Wisconsin-Madison, 1983
James R. Ogletree, professor emeritus, Ed.D., Columbia, 1956
James S. Rinehart, assistant professor, Ph.D., Ohio State, 1988
Charles J. Russo, associate professor, Ed.D., St. John's, 1989
Susan J. Scollay, associate professor, Ph.D., Kansas State, 1979
Betty E. Steffy, associate professor, Ed.D., Pittsburgh, 1978
W. Paul Street, professor emeritus, Ph.D., Northwestern, 1947
Eddy J. Van Meter, professor, Ed.D., New Mexico State, 1971

## CURRICULUM AND INSTRUCTION

Peter N. Winograd, chair

Gary Anglin, associate professor, Ed.D., Indiana, 1979
Harriette Arrington, assistant professor, Ph.D., Purdue, 1987
Ronald Atwood, professor, Ed.D., Florida State, 1966
Virginia Atwood, professor, Ph.D., Texas, 1968
Harry V. Barnard, professor emeritus, Ed.D., Alabama, 1959
Frank Bickel, associate professor, Ed.D., Kentucky, 1970
Ollie E. Bissmeyer, Jr., assistant professor emeritus, Ed.D., Indiana, 1964
Traci Bliss, visiting professor, Ph.D., Stanford, 1986
Sharon Brennan, assistant professor, Ed.D., Kentucky, 1987
Connie A. Bridge, professor, Ed.D., University of Arizona, 1977
William S. Bush, associate professor, Ed.D., Georgia, 1982
Mary Ann Farley, associate professor, M.A., Kentucky, 1976
Robert Gaskins, assistant professor, Ed.D., SUNY-Albany, 1990
Lyman Ginger, professor emeritus, Ed.D., Kentucky, 1950
Marion Hines, assistant professor, Ph.D., Georgetown, 1980
Deneese L. Jones, assistant professor, Ph.D., Texas A&M, 1991
Douglas Jones, assistant professor, Ed.D., Georgia, 1990
Linda Levstik, professor, Ph.D., Ohio State, 1980
Catherine Lytle, assistant professor emeritus, M.A., Kentucky, 1949
Joan Mazur, assistant professor, Ph.D., Cornell, 1993
Nancy McClure, assistant professor emeritus, M.A., Kentucky, 1954
Jack McElroy, professor, Ed.D., Cincinnati, 1974
Keith McElroy, assistant professor, Ph.D., Michigan, 1993
James T. Moore, professor emeritus, Ph.D., Stanford, 1949
Sara Moore, assistant professor, Ph.D., Virginia, 1994
Theodore Mueller,* professor emeritus, Ph.D., Northwestern, 1953
Phil Nacke, associate professor emeritus, Ed.D., University of British Columbia, Canada, 1970
Fran Perkins, assistant professor, Ph.D., Alabama, 1992
Opal Reynolds, assistant professor emeritus, M.A., Kentucky, 1952
Rosetta Sandidge, assistant professor, Ph.D., Kentucky, 1989
Mary C. Shake, associate professor, Ed.D., SUNY at Albany, 1984
Kawanna Simpson, professor, Ed.D., Kentucky, 1976
C. Leland Smith, professor emeritus, Ed.D., Kentucky, 1962
Doug Smith, associate professor, Ph.D., Arizona, 1986
J. Truman Stevens, associate professor, Ed.D., Virginia, 1972
Marilyn Strutchens, assistant professor, Ed.D., Georgia, 1993
Martha Sudduth, professor emeritus, Ed.D., Indiana, 1962
Robert Tannenbaum, adjunct professor, Ed.D., Columbia, 1968
Betty A. Taylor, associate professor emeritus, M.A., Kentucky, 1963
Debbie Thomas, assistant professor, Ph.D., Southern Illinois, 1993
Karen Schuster Webb, assistant professor, Ph.D., Indiana, 1980
Ayleene Whitehead, assistant professor emeritus, M.A., Kentucky, 1961
Angene Wilson,* professor, Ph.D., Ohio State, 1976
Peter N. Winograd, professor, Ph.D., Illinois, 1981

*joint appointment

## EDUCATIONAL AND COUNSELING PSYCHOLOGY

Judith Worell, chair

Reginald Alston, associate professor, Ph.D., Florida State, 1986
Eric M. Anderman, assistant professor, Ph.D., Michigan, 1994
C. Dwight Auvenshine,* associate professor emeritus, Ph.D., Missouri, 1962
James R. Barclay, professor emeritus, Ph.D., Michigan, 1959
Lisa Barclay,* professor emeritus, Ph.D., Stanford, 1969
Charlotte Clark, associate professor, Ph.D., Minnesota, 1977
Henry P. Cole, professor, Ed.D., SUNY, 1968
Ralph Crystal, associate professor, Ph.D., Wisconsin, 1977
Fred W. Danner, professor, Ph.D., Minnesota, 1974
Stephen T. DeMers, associate professor, Ed.D., Rutgers, 1976
Paul de Mesquita, assistant professor, Ph.D., Texas/Austin, 1987
Sonja Feist-Price, assistant professor, Ph.D., Southern Illinois, 1992
Robert J. Illback, adjunct assistant professor, Psy.D., Rutgers, 1980
James M. Kuder,* adjunct professor, Ph.D., Oregon, 1969
Gordon P. Liddle, professor emeritus, Ph.D., Chicago, 1959
Emanuel Mason, professor, Ed.D., Temple, 1972
William Meegan, adjunct assistant professor, Ph.D., Kentucky, 1975
Thomas Miller,* professor, Ph.D., SUNY, 1971
Michael Nichols, adjunct assistant professor, Ph.D., Kentucky, 1978
Earl Rankin, professor emeritus, Ph.D., Michigan, 1958
Leonard Ravitz, associate professor emeritus, Ed.D., Maryland, 1957
Pam Remer, associate professor, Ph.D., Colorado, 1972
Rory Remer, professor, Ph.D., Colorado, 1972
Timothy Smith,* professor, Ph.D., North Carolina, 1963
Doris Stilwell, adjunct assistant professor, Ph.D., Kentucky, 1990
William E. Stilwell III, professor, Ph.D., Stanford, 1969

Raymond A. Wilkie, associate professor emeritus, Ph.D., Yale, 1954; Ph.D., Kentucky, 1960
Duvon Winborne, assistant professor, Ph.D., Michigan, 1980
Judith Worell, professor, Ph.D., Ohio State, 1956
Lynda Brown Wright, assistant professor, Ph.D., Texas A&M, 1991
*joint appointment

### EDUCATIONAL POLICY STUDIES AND EVALUATION

Edward Kifer, chair

Haithe Anderson, assistant professor, Ph.D., Ohio State, 1993
Richard Angelo, associate professor, Ed.D., Temple, 1978
Jeffery P. Bieber, assistant professor, Ph.D., Michigan, 1990
Collins W. Burnett, professor emeritus, Ph.D., Ohio State, 1948
Clinton Collins, associate professor, Ph.D., Indiana, 1970
David E. Denton, professor emeritus, Ed.D., Tennessee, 1963
Alan J. DeYoung, professor, Ph.D., Stanford, 1975
Charles F. Elton, professor emeritus, Ph.D., Ohio State, 1951
Juanita W. Fleming,* professor, Ph.D., Catholic University, 1969
Beth Goldstein, associate professor, Ph.D., Wisconsin, 1985
Willis Griffin, associate professor emeritus, Ed.D., Columbia, 1952
Thomas R. Guskey, professor, Ph.D., Chicago, 1979
Edward Kifer, professor, Ph.D., Chicago, 1973
Richard LaBrecque, associate professor, Ed.D., Boston, 1971
Leslie L. Martin, professor emeritus, Ph.D., Indiana, 1952
Virginia Davis Nordin, associate professor, J.D., Harvard, 1959
Emmanuel Okorley, assistant professor, Ph.D., Kentucky, 1993
Edgar L. Sagan, associate professor, Ph.D., Ohio State, 1969
Karen Tice,* assistant professor, Ph.D., Kentucky, 1993
*joint appointment

### KINESIOLOGY AND HEALTH PROMOTION

Melody Noland, chair

Rayma Beal, associate professor, Ed.D., Cincinnati, 1985
Ronald Bulbulian, associate professor, Ph.D., Southern California, 1980
Barbara Call, associate professor emeritus, Ed.S., Eastern Kentucky, 1975
Martha Carr, professor emeritus, Ed.D., Indiana, 1944
Maurice Clay, professor emeritus, Ed.D., Kentucky, 1955
Allison Colvin, assistant professor, M.Ed., Virginia, 1992
Jess L. Gardner, associate professor emeritus, Ed.D., Kentucky, 1964
Stella Gilb, assistant professor emeritus, M.A., Kentucky, 1940
Joseph J. Gruber, professor emeritus, Ph.D., Purdue, 1959
John Hall, associate professor, Ph.D., Oregon, 1975
Eugene Huff, assistant professor emeritus, M.A., Tennessee, 1964
Ernest Jokl, professor emeritus, M.D., Breslau, 1931
Paul M. Kingery, assistant professor, Ph.D., Oregon, 1988
Stanley Labanowich, associate professor, Ph.D., Illinois, 1975
James Nance, associate professor, Ed.S., Eastern Kentucky, 1977
Melody Noland, professor, Ph.D., Maryland, 1981
Steve Parker, assistant professor, M.A., Eastern Kentucky, 1984
Richard Riggs, associate professor, Ed.D., Tennessee, 1975
Abdelmonem Rizk, associate professor emeritus, Ed.D., Kentucky, 1968
Robert Shapiro, associate professor, Ph.D., Illinois-Urbana, 1979
Lucian Taylor, assistant professor, M.A., Western Kentucky, 1979
Pentti Teraslinna, professor emeritus, Ph.D., Purdue, 1966
Dennis Vinton, associate professor, Re.D., Indiana, 1969
Andrew Weiner, associate professor, Ed.D., Georgia, 1976

### REHABILITATION COUNSELING

Ralph M. Crystal, director

Ralph M. Crystal, associate professor, Ph.D., Wisconsin, 1977
Sonja M. Feist-Price, assistant professor, Rh.D., Southern Illinois, 1992
Debra A. Harley, assistant professor, Ph.D., Southern Illinois, 1992
Lea J. Perritt,* assistant professor, Ph.D., Kentucky, 1983
*adjunct appointment

### SPECIAL EDUCATION

William H. Berdine, chair

William H. Berdine, associate professor, Ed.D., Penn State, 1972
JoAnn Berryman, assistant professor, M.A., Kentucky, 1963
A. Edward Blackhurst, professor, Ph.D., Pittsburgh, 1966
Belva Collins, assistant professor, Ed.D., Kentucky, 1990
Donald P. Cross, associate professor, Ed.D., Kansas, 1968
Ralph M. Crystal, associate professor, Ph.D., Wisconsin, 1977
Sonja Feist-Price, assistant professor, Rh.D., Southern Illinois, 1992
Debra A. Harley, assistant professor, Ph.D., Southern Illinois, 1992
Mary Louise Hemmeter, assistant professor, Ph.D., Vanderbilt, 1991
Albert S. Levy, associate professor emeritus, Ed.D., Portia, 1953
Melton C. Martinson, professor, Ph.D., Wisconsin, 1965
C. Michael Nelson, professor, Ed.D., Kansas, 1969
Lea J. Perritt,* assistant professor, Ph.D., Kentucky, 1983
John W. Schuster, associate professor, Ed.D., Kentucky, 1987
Deborah Bott Slaton, associate professor, Ph.D., Florida, 1983
Kay Stevens, associate professor, Ed.D., Kentucky, 1989
*adjunct appointment

### VOCATIONAL EDUCATION

Charles Byers, chair

Herbert H. Bruce, Jr., professor emeritus, Ed.D., Kentucky, 1965
Charles Byers, professor, Ph.D., Ohio State, 1972
Bernard Fagan, professor emeritus, Ed.D., Kentucky, 1970
Inez H. Hill, assistant professor emeritus, M.S., Kentucky, 1952
Margaret Bell Humphreys, assistant professor emeritus, M.A., Kentucky, 1943
Evangeline S. Kelsay, assistant professor emeritus, M.A., Kentucky, 1948
Leonard C. McDowell, professor emeritus, Ed.D., Kentucky, 1964
David C. McMurtry, associate professor emeritus, Ed.D., Indiana, 1966
Sandra Miller, professor, Ph.D., Ohio State, 1981
Vernon Musselman, professor emeritus, Ed.D., Oklahoma, 1946
Clayton Omvig, professor, Ph.D., Iowa State, 1968
Rodney Tulloch, associate professor, Ph.D., Penn State, 1972

## COLLEGE OF ENGINEERING

Thomas W. Lester, dean

### BIOMEDICAL ENGINEERING

(see faculty listing under *The Graduate School,* page 301)

### CHEMICAL AND MATERIALS ENGINEERING

Eric A. Grulke, chair

Kimberly Ward Anderson, associate professor, Ph.D., Carnegie-Mellon, 1986
Dibakar Bhattacharyya, professor, Ph.D., Illinois Institute of Technology, 1966
George F. Crewe, associate professor emeritus, Ph.D., West Virginia, 1970
Robert J. DeAngelis, professor emeritus, Ph.D., Northwestern, 1965
Frank J. Derbyshire, professor, Ph.D., Imperial College, 1972
Robert C. Duncan, Jr., assistant professor emeritus, M.S., Kentucky, 1957
H. Alan Fine, associate professor, Sc.D., Massachusetts Institute of Technology, 1973
Peter P. Gillis, professor, Ph.D., Brown, 1964
Eric A. Grulke, professor, Ph.D., Ohio State,1975
Charles E. Hamrin, Jr., professor, Ph.D., Northwestern, 1964
Gerald P. Huffman, research professor, Ph.D., West Virginia, 1962
Douglass S. Kalika, assistant professor, Ph.D., California-Berkeley, 1988
Richard I. Kermode, professor, Ph.D., Northwestern, 1962
James G. Morris, professor, Ph.D., Purdue, 1956
Kenji Okazaki, professor, Dr. Eng. Sci., Kyoto University, 1967
Lynn S. Penn, professor, Ph.D., Bryn Mawr, 1974
Asit K. Ray, professor, Ph.D., Clarkson College of Technology, 1980
William H. Reed, adjunct assistant professor, M.S., Kentucky, 1972
Phillip J. Reucroft, professor, Ph.D., Imperial College, England, 1959
J. Thomas Schrodt, professor, Ph.D., Louisville, 1966
Naresh Shah, assistant research professor, Ph.D., Kentucky, 1987
Roy E. Swift, professor emeritus, D.Engr., Yale, 1949
Tate T. H. Tsang, associate professor, Ph.D., Texas at Austin, 1980

### CIVIL ENGINEERING

Donn E. Hancher, chair

Staley F. Adams, professor emeritus, Ph.D., Colorado, 1965
George E. Blandford, professor, Ph.D., Cornell, 1980
David K. Blythe, professor emeritus, M.S., Cornell, 1950
Richard Cheeks, adjunct assistant professor, M.S., Kentucky, 1972
John A. Deacon, professor, D.Engr., California-Berkeley, 1965
John A. Dearinger, professor emeritus, M.S., Kentucky, 1948
Vincent P. Drnevich, professor emeritus, Ph.D., Michigan, 1967
David C. Froehlich, assistant professor, Ph.D., Colorado State, 1988
Hans Gesund, professor, D.Engr., Yale, 1958
Donn E. Hancher, professor, Ph.D., Purdue, 1972
Bobby O. Hardin, professor, Ph.D., Florida, 1961
Issam E. Harik, professor, Ph.D., Wayne State, 1982
Donald Hartman, adjunct assistant professor, M.S., Tennessee, 1973
Barry House, adjunct assistant professor, M.S., Kentucky, 1975
Yang H. Huang, professor emeritus, D.Sc., Virginia, 1966
John W. Hutchinson, professor emeritus, Ph.D., Illinois, 1961
Robert A. Lauderdale, professor emeritus, Ph.D., Massachusetts Institute of Technology, 1958
Kamyar C. Mahboub, associate professor, Ph.D., Texas A&M, 1988

Samuel A. Mory, professor emeritus, C.E., Kentucky, 1946
Lindell E. Ormsbee, associate professor, Ph.D., Purdue, 1983
James David Reynolds, adjunct assistant professor, M.S., Kentucky, 1970
Jerry G. Rose, professor, Ph.D., Texas A&M, 1971
Sergio E. Serrano, associate professor, Ph.D., Waterloo, 1985
Nikiforos Stamatiadis, assistant professor, Ph.D., Michigan State, 1990
James D. Stevens, associate professor, Ph.D., Washington, 1981
Kevin G. Sutterer, assistant professor, Ph.D., Georgia Institute of Technology, 1993
Shien T. Wang, professor, Ph.D., Cornell, 1969
Yi-Tin Wang, associate professor, Ph.D., Illinois-Urbana, Champaign, 1984
Don J. Wood, professor, Ph.D., Carnegie Institute of Technology, 1961
Xiangwu Zeng, assistant professor, Ph.D., Cambridge, 1990

## COMPUTER SCIENCE

Miroslaw Truszczynski, chair

Anthony Q. Baxter, associate professor, Ph.D., Virginia, 1973
Yuri J. Breitbart, professor, Ph.D., Israel Technological Institute, 1973
Fuhua Cheng, associate professor, Ph.D., Ohio State, 1982
Raymond H. Cox,* associate professor, Ph.D., North Carolina, 1963
Raphael A. Finkel, professor, Ph.D., Stanford, 1976
Judith A. Goldsmith, assistant professor, Ph.D., Wisconsin-Madison, 1988
James Griffioen, assistant professor, Ph.D., Purdue, 1991
J. Robert Heath,* associate professor, Ph.D., Auburn, 1973
Jerzy W. Jaromczyk, associate professor, Ph.D., Warsaw, Poland, 1984
Andrew M. Klapper, assistant professor, Ph.D., Brown, 1982
K. K. Kubota,* professor, Ph.D., Facultes des Sciences de Paris, France, 1969
Forbes D. Lewis, professor, Ph.D., Cornell, 1970
Victor Marek, professor, Ph.D., Warsaw, Poland, 1968
A.C.R. Newbery, professor emeritus, Ph.D., London, England, 1962
Arcot K. Rajasekar, assistant professor, Ph.D., University of Maryland, 1989
Brent Seales, assistant professor, Ph.D., Wisconsin, 1991
Robert S. Tannenbaum, adjunct associate professor, Ed.D., Columbia, 1968
Miroslaw Truszczynski, professor, Ph.D., Technical University of Warsaw, 1980
Grzegorz Wasilkowski, professor, Ph.D., Warsaw, Poland, 1980
Rajendra S. Yavatkar, assistant professor, Ph.D., Purdue, 1989

*joint appointment

## ELECTRICAL ENGINEERING

Syed A. Nasar, chair

Lyle N. Back, assistant professor emeritus, M.S., Kentucky, 1962
Eugene B. Bradley, professor, Ph.D., Vanderbilt, 1964
Elizabeth J. Brauer, assistant professor, Ph.D., Illinois, 1993
Jimmie J. Cathey, professor, Ph.D., Texas A&M, 1972
Raymond J. Distler, associate professor, Ph.D., Kentucky, 1964
Kevin D. Donohue, associate professor, Ph.D., Illinois Institute of Technology, 1987
Stephen D. Gedney, assistant professor, Ph.D., Illinois, 1990
Laurence G. Hassebrook, assistant professor, Ph.D., Carnegie Mellon, 1990
J. Robert Heath, associate professor, Ph.D., Auburn, 1973
Lawrence E. Holloway, assistant professor, Ph.D., Carnegie-Mellon, 1990
John S. Jackson, Jr., associate professor emeritus, M.S., California Institute of Technology, 1954
Prasad K. Kadaba, professor emeritus, Ph.D., California-Los Angeles, 1949
Martin C. Krimm, assistant professor emeritus, M.S., Kentucky, 1962
Ratnesh Kumar, assistant professor, Ph.D., Texas-Austin
James E. Lumpp, Jr., assistant professor, Ph.D., Iowa, 1993
Janet K. Lumpp, assistant professor, Ph.D., Iowa, 1993
Syed A. Nasar, professor, Ph.D., California-Berkeley, 1963
Clayton R. Paul, professor, Ph.D., Purdue, 1970
Arthur V. Radun, assistant professor, Ph.D., Massachusetts Institute of Technology, 1991
Christopher A. Ryan, assistant professor, Ph.D., Virginia Polytechnic Institute, 1993
William T. Smith, assistant professor, Ph.D., Virginia Polytechnic Institute, 1990
Earl L. Steele, professor emeritus, Ph.D., Cornell, 1952
Charles E. Stroud, assistant professor, Ph.D., Illinois, 1991
Frederick C. Trutt, professor, Ph.D., Delaware, 1964
Bruce L. Walcott, associate professor, Ph.D., Purdue, 1987
Keith W. Whites, assistant professor, Ph.D., Illinois, 1991

## ENGINEERING MECHANICS

Donald C. Leigh, interim chair

Millard F. Beatty, Jr., professor emeritus, Ph.D., Johns Hopkins, 1964
Louis M. Brock, professor, Ph.D., Northwestern, 1972
Oscar W. Dillon, Jr., professor, D.Eng.Sci., Columbia, 1959
Graeme Fairweather,* professor, Ph.D., St. Andrews, Scotland, 1966
Mark T. Hanson, associate professor, Ph.D., Northwestern, 1989
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
Clifford J. Lissenden, visiting assistant professor, Ph.D., Virginia, 1993
Wei-Yang Lu, associate professor, Ph.D., Yale, 1981
David J. Shippy, professor, Ph.D., Iowa State, 1963
Suzanne Weaver Smith, assistant professor, Ph.D., Virginia Polytechnic Institute, 1988
Theodore R. Tauchert, professor, D.Eng., Yale, 1964

*joint appointment

## MECHANICAL ENGINEERING

Clifford J. Cremers, interim chair

Robert S. Ballinger, assistant professor, Ph.D., Cincinnati, 1990
Roy D. Burberry, assistant professor emeritus, M.A., Kentucky, 1958
Willis Merle Carter, professor emeritus, Ph.D., Michigan, 1953
Louis C. Chow, professor, Ph.D., California, Berkeley, 1978
Clifford J. Cremers, professor, Ph.D., Minnesota, 1964
James E. Funk, professor, Ph.D., Pittsburgh, 1960
Ottfried J. Hahn, professor, Ph.D., Princeton, 1964
Ibrahim S. Jawahir, associate professor, Ph.D., New South Wales, 1986
Charles F. Knapp, professor, Ph.D., Notre Dame, 1968
Radovan Kovacevic, associate professor, Ph.D., Titograd, 1978
Thomas W. Lester, professor, Ph.D., Purdue, 1974
Maurice Keith Marshall, associate professor emeritus, M.S., Kentucky, 1956
Harry L. Mason, associate professor, M.S., Kentucky, 1959
James M. McDonough, associate professor, Ph.D., California, LA, 1980
M. Pinar Mengüc, professor, Ph.D., Purdue, 1985
Mihail C. Roco, professor, D.Eng., Bucharest, 1976
Keith E. Rouch, professor, Ph.D., Marquette, 1977
J. Peter Sadler, associate professor, D.Eng., Rensselaer, 1972
Kozo Saito, professor, D.Eng., Seikei, Tokyo, 1980
Andrew F. Seybert, professor, Ph.D., Purdue, 1975
Shiva N. Singh, professor, Ph.D., Indian Institute of Technology, Kharagpur, India, 1959
Orville W. Stewart, professor emeritus, M.S., Kentucky, 1955
Kaveh Tagavi, associate professor, Ph.D., California-Los Angeles, 1982
H.S. Tzou, associate professor, Ph.D., Purdue, 1983
Ting-Wen Wu, associate professor, Ph.D., Texas at Austin, 1987

## MINING ENGINEERING

Richard J. Sweigard, chair

Joseph W. Leonard, professor, M.S., Penn State, 1958
G. T. Lineberry, associate professor, Ph.D., West Virginia University, 1982
Richard S. Mateer, professor, Ph.D., Pittsburgh, 1950
B. K. Parekh, adjunct associate professor, Ph.D., Penn State, 1979
Joseph Sottile, Jr., assistant professor, Ph.D., Penn State, 1991
Richard J. Sweigard, associate professor, Ph.D., Penn State, 1984
Konstanty F. Unrug, professor, Ph.D., Krakow, 1966
Andrzej Wala, associate professor, Ph.D., Mining and Metallurgical Academy, 1972
Xiang H. Wang, assistant research professor, Ph.D., Lulea University of Technology, Sweden, 1989
Frederick D. Wright, professor emeritus, M.A., Columbia, 1942
Jon C. Yingling, assistant professor, Ph.D., Pittsburgh, 1988

# COLLEGE OF FINE ARTS

Rhoda-Gale Pollack, dean

## ART

Robert Tharsing, chair

Clifford Amyx, professor emeritus, M.A., Kentucky, 1943
Garry Bibbs, assistant professor, M.F.A., Kentucky, 1986
Dennis Carpenter, associate professor, M.F.A.,Florida, 1979
Alice Christ, assistant professor, Ph.D., Chicago, 1992
Georgia Collins, professor, Ph.D., Ohio State, 1978
Patricia Condon, assistant professor, Ph.D., Brown University, 1986
Gerald Ferstman, associate professor, M.F.A., University of Washington, 1965
Elizabeth Finkenstaedt, professor emeritus, Ph.D., Harvard, 1963
Joseph Fitzpatrick, professor emeritus, M.A., Louisville, 1958
Robert James Foose, associate professor, B.A., Kentucky, 1963
Deborah Frederick, associate professor, M.F.A., Rochester Institute of Tech., 1967
Jack Gron, associate professor, M.F.A., Washington University, 1976
Marilyn Hamann, associate professor, M.A., California, Berkeley, 1970
Christine Havice, associate professor, Ph.D., Penn State, 1978
Donald H. Hoffman, professor, Ed.D., Georgia, 1972
Robert Jensen, assistant professor, Ph.D., California, Berkeley, 1987

Eduardo Kac, assistant professor, M.F.A., School of Art Institute of Chicago, 1990
Jane S. Peters, associate professor, Ph.D., Wisconsin-Madison, 1975
James Pierce, professor emeritus, Ph.D., Harvard, 1959
Allan Richards, assistant professor, Ed.D., Illinois State, 1987
Arturo A. Sandoval, professor, M.F.A., Cranbrook, 1971
Robert Scroggins, assistant professor, M.F.A., Southern Illinois-Edwardsville, 1980
George Szekely, professor, Ed.D., Columbia, 1975
Robert Tharsing, associate professor, M.A., California, Berkeley, 1967
John R. Tuska, professor emeritus, M.F.A., Alfred, 1960
Teresa Unseld, assistant professor, Ed.D., Ball State, 1979

### ARTS ADMINISTRATION PROGRAM

Michael E. Braun, assistant professor, M.A., St. Cloud State, 1978

### SCHOOL OF MUSIC

W. Harry Clarke, director

Joseph W. Baber, professor, M.M., Rochester, 1965
Arnold Blackburn, professor emeritus, M.M., Michigan, 1943
Lance W. Brunner, associate professor, Ph.D., North Carolina, 1976
James B. Campbell, professor, M.M., Northern Illinois, 1978
Wm. Harry Clarke, associate professor, M.A., George Peabody, 1963
Richard Clary, assistant professor, M.M., Arizona State, 1984
Gordon B. Cole, associate professor, M.M., New Hampshire, 1976
Kate R. Covington, associate professor, Ph.D., Indiana, 1982
Richard C. Domek, Jr., associate professor, Ph.D., Indiana, 1976
David Elliott, associate professor, M.M., Catholic University of America, 1968
Bradley Ethington, assistant professor, M.M., Baylor, 1988; M.M., Texas, 1991
Terry R. Everson, assistant professor, M.M., Ohio State, 1984
Robert Bernard Fitzgerald, professor emeritus, M.M., Jordon Conservatory of Music, 1935
Jonathan Glixon, associate professor, Ph.D., Princeton, 1979
Allen Goodwin, associate professor, Ph.D., North Texas State, 1977
Arthur Graham, professor, Ed.D., Columbia, 1960
Harold R. Gray, professor, D.M.A., Illinois, 1994
Orville Hammond, assistant professor, M.M., Eastman School of Music, 1991
Hubert Henderson, professor emeritus, Ph.D., North Carolina, 1954
Alan B. Hersh, professor, D.Mus., Indiana, 1971
Sara Holroyd, professor emeritus, M.A., Columbia, 1951
Donald Ivey, professor emeritus, D.M.A., Illinois, 1962
Clifford Jackson, assistant professor, B.A., Oberlin, 1977
Phyllis Jenness, professor emeritus, M.A., Kentucky, 1958
Jefferson Johnson, assistant professor, D.M.A., Colorado, 1992
Benjamin Karp, assistant professor, M.M., Indiana, 1983
Stephen King, assistant professor, D.M.A., Southern Baptist Theological Seminary, 1991
Aimo J. Kiviniemi, professor emeritus, M.A., Ohio State, 1946
Charles H. Lord, associate professor, Ph.D., Indiana, 1978
Noemi Lugo, assistant professor, M.M., Utah, 1984; D.M.A., Colorado, 1992
Daniel Mason, associate professor, M.M., Southern California, 1977
Everett McCorvey, assistant professor, D.M.A., Alabama, 1989
Mina F. Miller, professor, Ph.D., New York University, 1978
Phillip Miller, associate professor, M.M.E., Boston, 1958
Ronald P. Monsen, associate professor, Ph.D., Wisconsin, 1978
Patricia Montgomery, associate professor, D.M.A., Indiana, 1979
Wesley Morgan, professor emeritus, Ph.D., Southern California, 1956
Bruce N. Morrison, associate professor, M.M., Northwestern, 1960
Miles S. Osland, associate professor, M.M., Eastman School of Music, 1987
Nathaniel Patch, professor emeritus, M.M., Eastman School of Music, 1941
Ron A. Pen, assistant professor, Ph.D., Kentucky, 1987
Schuyler Robinson, associate professor, D.M.A., Illinois, 1972
Peter C. Simpson, associate professor, M.A., New Hampshire, 1975
David W. Sogin, associate professor, Ph.D., Texas at Austin, 1986
Lucien P. Stark, professor emeritus, D.M.A., Michigan, 1968
Cecilia Hoi-Mee Chu Wang, associate professor, Ph.D., Texas Tech., 1975
Dale E. Warren, associate professor, M.M., University of N. Colorado, 1976

### THEATRE

Russell E. Jones, chair

Marlon Bailey, assistant professor, M.F.A., West Virginia, 1994
Michael Friedman, assistant professor, Ph.D., Indiana, 1987
Russell Henderson, associate professor, M.F.A, Trinity University-Dallas Theatre Center, 1979
John Holloway, associate professor, M.F.A., Trinity University, 1980
Russell E. Jones, associate professor, M.F.A., Northwestern, 1989
Geraldine Maschio, associate professor, Ph.D., Wisconsin-Madison, 1981
A. J. Pinkney, assistant professor, M.F.A., Florida State, 1990
James W. Rodgers, professor, Ph.D., Wayne State, 1968
Raymond A. Smith, associate professor emeritus, M.F.A., Western Reserve, 1955
Mary A. Stephenson, associate professor, M.A., Florida, 1963

## COLLEGE OF HUMAN ENVIRONMENTAL SCIENCES

Retia Scott Walker, dean

### FAMILY STUDIES

Raymond E. Forgue, chair

Darla R. Botkin, associate professor, Ph.D., Tennessee, 1983
Gregory W. Brock, associate professor, Ph.D., Penn State, 1978
Ruth Ann Crum, associate professor, M.S., Kentucky, 1980
Carolyn Edwards, professor, Ed.D., Harvard, 1974
Robert H. Flashman, extension professor, Ph.D., Ohio State, 1976
Raymond E. Forgue, associate professor, Ph.D., Virginia Polytechnic Institute and State University, 1980
B. Jan McCulloch, assistant professor, Ph.D., North Carolina, 1989
Sandra Miller, professor, Ph.D., Ohio State, 1971
Claudia J. Peck, professor, Ph.D., Iowa State, 1981
Donna S. Quick, associate professor, Ph.D. Ohio State, 1989
Samuel Quick, extension professor, Ph.D., Florida State, 1975
Mary Lou Routt, associate professor, Ph.D., Kentucky, 1994
Kimberly F. Townley, associate professor, Ph.D., Missouri-Columbia, 1984
William Turner, associate professor, Ph.D., Virginia Polytechnic Institute and State University, 1990
M. O'Neal Weeks, professor, Ph.D., North Carolina, 1972
Stephan Wilson, associate professor, Ph.D., Tennessee, 1985

### INTERIOR DESIGN, MERCHANDISING AND TEXTILES

chair to be announced

Bette Jo Dedic, extension specialist, M.S., Purdue, 1973
Elizabeth Easter, associate professor, Ph.D., Tennessee, 1982
Linda Heaton, associate extension professor, Ph.D., Ohio State, 1980
Laura Jolly, associate professor, Ph.D., Oklahoma State, 1983
Karen Ketch, associate professor, M.A., Michigan State, 1979
Kim Miller, assistant professor, Ph.D., Wisconsin-Madison, 1990
Maria Okorley, assistant professor, Ph.D., Tennessee, 1994
Margaret Portillo, assistant professor, Ph.D., Wisconsin, 1991
Linda Reece, extension specialist, M.A., Iowa State, 1972
Joseph A. Rey-Barreau, associate professor, M.S., Louisville, 1983
Terry D. Rothgeb, associate professor, M.A., Missouri, 1972
Allison Carll White, associate professor, Ph.D., Tennessee, 1982
Ann Whiteside-Dickson, associate professor, M.S., Florida State, 1976

### NUTRITION AND FOOD SCIENCE

L. Preston Mercer, chair

Kwaku Addo, assistant professor, Ph.D., Washington State, 1991
M. Margaret Barth, assistant professor, Ph.D., R.D., Illinois, 1991
Desmond Brown, assistant professor, M.A., George Washington University, 1994
Linda Huang Chen, professor, Ph.D., Louisville, 1964
Ching K. Chow, professor, Ph.D., Illinois, 1969
Darlene Forester, associate extension professor, Ph.D., R.D., Kentucky, 1977
Hazel Waldron Forsythe, associate professor, Ph.D., Oklahoma State, 1987
Howard P. Glauert, associate professor, Ph.D., Michigan State, 1982
Bernhard Hennig, professor, Ph.D., R.D., Iowa State, 1982
Janet Kurzynske, assistant extension professor, Ph.D., R.D., Tennessee, 1975
Pamela McMahon, associate professor, Ph.D., R.D., Maryland, 1992
L. Preston Mercer, professor, Ph.D., Louisiana State, 1971
Claire Schmelzer, associate professor, Ph.D., R.D., Virginia Polytechnic and State, 1992
Teresa Smith, assistant professor, M.S., R.D., L.N.D., Kentucky, 1985
Myrna Wesley, associate professor, M.S., R.D., Kentucky, 1975

## COLLEGE OF LAW

David E. Shipley, dean

Richard C. Ausness, professor, LL.M., Yale, 1973
Drusilla Vansant Bakert, associate dean, J.D., Harvard, 1977
John Randolph Batt, professor, LL.M., Yale, 1960
Carolyn Schmoll Bratt, professor, J.D., Syracuse, 1974
Rutheford B Campbell, Jr., professor, LL.M., Harvard, 1971
Herbert E. Cihak, director of law library and assistant professor, J.D., Nebraska, 1983

Mary J. Davis, associate professor, J.D., Wake Forest, 1985
Todd B. Eberle, associate dean for Continuing Legal Education, J.D., Vanderbilt, 1972
William Hifner Fortune, professor, LL.B., Kentucky, 1964
Eugene R. Gaetke, associate dean and professor, J.D., Minnesota, 1974
Alvin Lee Goldman, professor, LL.B., New York, 1962
Darlene C. Goring, assistant professor, LL.M., Northwestern, 1994
Mary Louise Graham, professor, J.D., Texas, 1977
Willburt Dunn Ham, professor emeritus, LL.M., Harvard, 1941
Roberta M. Harding, associate professor, J.D., Harvard, 1986
Michael P. Healy, associate professor, J.D., Pennsylvania, 1984
Carolyn M. Kennedy, associate dean for admissions, minority affairs and student services, J.D., Kentucky, 1983
Robert Gene Lawson, professor, J.D., Kentucky, 1963
Thomas P. Lewis, professor, S.J.D., Harvard, 1964
Martin J. McMahon, Jr., professor, LL.M., Boston University, 1979
Douglas C. Michael, associate professor, J.D. California-Berkeley, 1983
Kathryn L. Moore, assistant professor, J.D., Cornell, 1988
Paul Oberst, professor emeritus, LL.M., Michigan, 1942
John M. Rogers, professor, J.D., Michigan, 1974
Robert G. Schwemm, professor, J.D., Harvard, 1970
David E. Shipley, dean and professor, J.D., University of Chicago, 1975
Thomas J. Stipanowich, professor, J.D., Illinois, 1980
Richard H. Underwood, professor, J.D., Ohio State, 1976
Stephen James Vasek, associate professor, LL.M., Harvard, 1969
Harold R. Weinberg, professor, J.D., Case-Western Reserve, 1969
Sarah N. Welling, professor, J.D., Kentucky, 1978
Deborah A. Wells, associate dean for development, B.A., Western Kentucky, 1972
Frederick William Whiteside, Jr., professor emeritus, LL.B., Cornell, 1936
Paul Allen Willis, professor, J.D., Kentucky, 1969

## COLLEGE OF MEDICINE

Emery A. Wilson, dean

### ANATOMY AND NEUROBIOLOGY

Don M. Gash, chair

Sonia L. Carlson, assistant professor, Ph.D., Rochester, 1987
Wayne A. Cass, assistant professor, Ph.D., Colorado, 1987
William B. Cotter, professor emeritus, Ph.D., Yale, 1956
Brian M. Davis, assistant professor, Ph.D., SUNY at Stony Brook, 1983
Marilyn M. Duncan, assistant professor, Ph.D., Worcester Polytechnic Institute, 1984
William K. Elwood, associate professor emeritus, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Ira Fowler, professor emeritus, Ph.D., Northwestern, 1952
Don M. Gash, professor, Ph.D., Dartmouth, 1975
James W. Geddes, assistant professor, Ph.D., University of Saskatchewan, 1984
Kurt F. Hauser, associate professor, Ph.D., University of Medicine and Dentistry of New Jersey, 1983
James P. Herman, assistant professor, Ph.D., Rochester, 1986
James F. Hyde, assistant professor, Ph.D., Rutgers, 1985
Lothar H. Jennes, associate professor, Ph.D., Paris Lodron University, Salzburg, Austria, 1978
Pamela E. Knapp, assistant professor, Ph.D., Ohio State, 1983
Brian R. MacPherson, associate professor, Ph.D., Memorial University of Newfoundland, 1978
Bruce E. Maley, associate professor, Ph.D., Ohio State, 1979
Mark P. Mattson, associate professor, Ph.D., Iowa, 1986
Miroslava B. Nikitovitch-Winer, professor emerita, Ph.D., Duke, 1957
Harold F. Parks, professor emeritus, Ph.D., Cornell, 1950
David Peck, associate professor, Ph.D., Johns Hopkins, 1961
John D. Porter, associate professor, Ph.D., Medical College of Virginia, 1980
Stephen W. Scheff, professor, Ph.D., Missouri, 1974
Kim B. Seroogy, assistant professor, Ph.D., California at Irvine, 1986
Stephen D. Smith, professor emeritus, Ph.D., Tulane, 1965
Harold H. Traurig, professor, Ph.D., Minnesota, 1963
Robert E. Watson, Jr., associate professor (part-time), Ph.D., University of Medicine and Dentistry of New Jersey, 1982
Zhiming Zhang, assistant professor, M.D., Beijing, 1983

*joint appointment

### ANESTHESIOLOGY

William O. Witt, chair

Robert B. Boettner, professor, M.D., Western Reserve, 1955
Peter P. Bosomworth, professor, M.D., Cincinnati, 1955
Dorothy Y. Brockopp,* associate professor, R.N., New York, 1975; Ph.D., New York, 1981
Gene W. Brockopp, associate professor, Ph.D., Indiana, 1957
Ignacio Cardenas, assistant professor, M.D., Marshall, 1988
George W. Colclough, associate professor, M.D., North Carolina, 1974
Jeffrey B. Dembo,* associate professor, D.D.S., Northwestern, 1981
Mark A. Etscheidt, assistant professor, Ph.D., Georgia State, 1989
Thomas J. Foster, professor (part-time), Pharm.D., Kentucky, 1973
Alan M. Gardner, assistant professor, M.D., Michigan, 1980
M. Fredrica Godshalk, associate professor, M.D., Maryland, 1969
Scott W. Hardigree, assistant professor, M.D., South Carolina, 1986
Eugene A. Hessel II, professor, M.D., California, San Francisco, 1960
Keith B. Javery, assistant professor, D.O., Kirksville, 1989
Karl A. Kroeker, instructor, M.D., Canada, 1988
Richard Lock, assistant professor, M.D., Northeast Ohio, 1981
Francis J. McDonnell, associate professor, M.B., Dublin, Ireland, 1973
Florence Melio, assistant professor (part-time), M.D., Virginia, 1989
Christopher L. Montgomery, assistant professor, M.D., Kentucky, 1985
Eddie L. Owens, associate professor, M.D., Louisville, 1968
Bernd Pfeifer, assistant professor, M.D., Ph.D., Germany, 1974
Michael A. Rie, associate professor, M.D., Harvard, 1966
Gregory L. Rose, assistant professor, M.D., Kentucky, 1986
Christopher M. Scheib, assistant professor, M.D., Georgetown, 1979
Jewell W. Sloan, assistant professor, Ph.D., Kentucky, 1984
Paul A. Sloan, assistant professor, M.D., Canada, 1980
Herbert Steger, associate professor, Ph.D., Southern California, 1969
Kenneth Thielmeier, assistant professor, M.D., Louisville, 1988
Elzbieta Wala, assistant professor, Ph.D., Cracow, Poland, 1973
Janet White, instructor, M.D., Virginia, 1977
Michael L. Whitworth, assistant professor, M.D., Oral Roberts, 1984
William O. Witt, professor, M.D., Minnesota, 1976
Thomas Young, assistant professor, M.D., University College, Dublin, Ireland, 1983

*joint appointment

### BEHAVIORAL SCIENCE

Thomas F. Garrity, chair

Susan Abbott-Jamison,* associate professor, Ph.D., North Carolina, 1974
Michael A. Andrykowski, associate professor, Ph.D., Illinois, 1984
Mary K. Anglin,* assistant professor, Ph.D., New School for Social Research, 1990
Lee X. Blonder, associate professor, Ph.D., Pennsylvania, 1986
Norma J. Christman,* associate professor, Ph.D., Wayne State, 1980
Cynthia M. Cole, assistant professor, Ph.D., North Carolina, 1989
Carol L. Elam,** associate professor, Ed.D., Kentucky, 1990
Thomas R. Ford,* professor emeritus, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Art Gallaher, Jr.,* professor emeritus, Ph.D., Arizona, 1956
Thomas F. Garrity, professor, Ph.D., Duke, 1971
John V. Haley, professor, Ph.D., Loyola, 1964
Lynne A. Hall,* associate professor, Ph.D., North Carolina, 1983
Mitzi M. Johnson, associate professor, Ph.D., Ohio State, 1986
Bryan M. Johnstone, assistant professor, Ph.D., Arizona, 1986
Thomas H. Kelly, associate professor, Ph.D., Minnesota, 1983
Erma J. Lawson, assistant professor, Ph.D., Kentucky, 1990
James A. McCubbin, associate professor, Ph.D., North Carolina, 1980
Robert W. Moore,** assistant professor, Ph.D., Kentucky, 1982
Phyllis J. Nash, professor, Ed.D., West Virginia, 1985.
Garth L. Olde, professor, Ph.D., Western Ontario, 1960
Graham D. Rowles,* professor, Ph.D., Clark University, 1976
Gary Shannon,* professor, Ph.D., Michigan, 1970
Robert Straus, professor emeritus, Ph.D., Yale, 1947
John van Willigen,* professor, Ph.D., Arizona, 1971
Helen Jean Wiese, associate professor, Ph.D., North Carolina, 1971
Doris Y. Wilkinson,* professor, Ph.D., Case Western Reserve, 1968
John F. Wilson, associate professor, Ph.D., Michigan, 1977
Rick S. Zimmerman, associate professor, Ph.D., Wisconsin, 1983

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**adjunct appointment

### BIOCHEMISTRY

Louis B. Hersh, chair

Douglas A. Andres, assistant professor, Ph.D., Purdue, 1990
Shung-Kai Chan, professor, Ph.D., Wisconsin, 1962
Maria C. Debeer, assistant professor, Ph.D., South Africa, 1992
Robert C. Dickson, professor, Ph.D., California-Los Angeles, 1970
Louis B. Hersh, professor, Ph.D., Brandeis, 1967
Alfred S. L. Hu, professor emeritus, Ph.D., Oregon, 1957
Mark S. Kindy,* associate professor, Ph.D., Boston University, 1987
Robert L. Lester, professor, Ph.D., California Institute of Technology, 1956
Michael D. Mendenhall, associate professor, Ph.D., Wisconsin, Madison, 1985
Daniel J. Noonan, associate professor, Ph.D., Texas-Austin, 1980

Kevin D. Sarge, Ph.D., assistant professor, North Carolina State, 1989
George W. Schwert, professor emeritus, Ph.D., Minnesota, 1943
Salvatore. J. Turco, professor, Ph.D., Pittsburgh, 1976
Thomas C. Vanaman, professor, Ph.D., Duke, 1968
Charles J. Waechter, professor, Ph.D., Kentucky, 1971
Sidney W. Whiteheart, assistant professor, Ph.D., Johns Hopkins, 1989
Alfred D. Winer, associate professor emeritus, Ph.D., Duke, 1957
Donghai Wu, assistant professor, Ph.D., Texas, 1990

*joint appointment

## DIAGNOSTIC RADIOLOGY

James C. Reed, chair

Michael Avison, associate professor, Ph.D., Yale, 1986
Karen S. Baker, assistant professor, M.D., Kentucky, 1984
Robert Beihn, instructor (part-time), Ph.D., Columbia, 1992
Gary R. Conrad, associate professor, M.D., Kentucky, 1977
George A. Digenis,* professor, Ph.D., Wisconsin, 1964
Andrew M. Fried, professor, M.D., Alabama, 1968
Michael Jay, * associate professor, Ph.D., Kentucky, 1980
Marta H. Kacki, assistant professor, M.D., Kentucky, 1988
Charles M. Kenney III, assistant professor, M.D., Illinois, 1988
Joseph G. King, assistant professor, M.D., Alabama, 1981
John E. Kirsch, assistant professor, Ph.D., MIT, 1984
Vesna M. Kriss, assistant professor, M.D., Pritzker, 1988
Thomas O. Larson,** assistant professor, M.D., Wisconsin, 1969
Charles Lee, associate professor, M.D., Northwestern, 1976
Arthur Lieber, professor, M.D., Louisville, 1953
Fang Kum Loh, associate professor, M.D., Singapore, 1972
Edward B. Moody, assistant professor, M.D., Rush, 1980
Calixto Pulmano,** assistant professor, M.D., Santo Tomas, 1962
Marguerite Purcell, ** associate professor, M.D., Pennsylvania, 1965
James C. Reed, professor, M.D., Miami School of Medicine, 1968
Christine N. Riley,** assistant professor, M.D., Kentucky, 1975
Harold D. Rosenbaum, professor emeritus, M.D., Harvard, 1944
Val M. Runge, professor, M.D., Stanford, 1982
U. Yun Ryo, professor, M.D., Kyungpook, Korea, 1966; Ph.D., Kyungpook, Korea, 1960
Albert C. Selke, Jr., professor, M.D., Pennsylvania, 1959
Wei-Jen Shih, professor, M.D., Taiwan, 1963
Guy H. Simmons, professor (part-time), Ph.D., Cincinnati, 1972
Truman D. Simmons, assistant professor, M.D., Louisiana State, New Orleans, 1952
Stanford Smith,* professor, Ph.D., Iowa State, 1961
Kimberly B. Stigers, assistant professor (part-time), M.D., Kentucky, 1987
James M. Strottmann, assistant professor, M.D., Iowa, 1987
William J. Vanarthos, assistant professor, M.D., New York Medical College, 1988
John H. Woodring, professor, M.D., Kentucky, 1976

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## EMERGENCY MEDICINE

J. Stephan Stapczynski, Jr., chair

Russell Dennison, assistant professor, (part-time), M.D., West Virginia, 1970
Charles A. Eckerline, associate professor, M.D., Kentucky, 1977
William H. Haney, assistant professor, M.D., Marshall, 1986
Leland J. Irwin, assistant professor (part-time), M.D., Florida, 1979
Louis J. Kroot, assistant professor, M.D., Georgetown, 1974
Michele M. Nypaver, assistant professor (part-time), M.D., Loyola, 1985
Anita G. Rogers, assistant professor, M.D., Kentucky, 1985
J. Stephan Stapczynski, Jr., professor, M.D., UCLA, 1976
Charles K. Stone, associate professor, M.D., Ohio, 1987
James E. Svenson, assistant professor, M.D., Chicago, 1980
Sharon E. Wells, assistant professor, M.D., Kentucky, 1978

## FAMILY PRACTICE

Samuel C. Matheny, chair

Olufemi A. Akindipe, assistant professor, M.D., Nigeria, 1982
Forrest W. Calico, associate professor (part-time), M.D., Kentucky, 1966
Lena E. Chaco, assistant professor, M.D., Nigeria, 1985
Greta L. Combs, assistant professor, M.D., Kentucky, 1982
Max A. Crocker, professor, M.D., Tennessee, 1963
Thomas A. Dale II,* assistant professor, M.D., Kentucky, 1972
Joseph A. Florence, assistant professor, M.D., Medical College of Virginia, 1980
Renee V. Girdler, assistant professor, M.D., Kentucky, 1989
Wanda C. Gonsalves, assistant professor, M.D., Kentucky, 1984
Michael D. Hagen, professor, M.D., Missouri, 1975
Gary W. Kearl, associate professor, M.D., Rush, 1982
Arch G. Mainous, assistant professor, Ph.D., Texas at Austin, 1988
Martin B. Marx, professor emeritus , D.V.M., Texas A&M, 1951; M.P.H., Harvard, 1959; Ph.D., North Carolina, 1968
Samuel C. Matheny, professor, M.P.H., UCLA, 1975; M.D., Kentucky, 1967
Marilyn Mehr, professor, Ph.D., California, 1972
Richard A. Neill, assistant professor, M.D., Kentucky, 1986
Christian N. Ramsey, Jr., professor, M.D., Emory, 1970
Elaine L. Reed, assistant professor, M.D., Illinois, 1984
Benjamin F. Roach, professor emeritus (part-time), M.D., Duke, 1943
E. C. Seeley, professor emeritus (part-time), M.D., Louisville, 1947
Walton Sumner II, assistant professor, M.D., Texas, 1985
Betty A. Walker, associate professor, Ph.D., Southern California, 1972
Alan S. Wrightson, assistant professor, M.D., Kentucky, 1986
Elizabeth H. Young, assistant professor (part-time), Ph.D., Texas, Houston, 1985
Roger G. Zoorob, instructor, M.D., Lebanon, 1985

*adjunct appointment

## MEDICINE

Richard J. Glassock, chair

Kenneth B. Ain, assistant professor, M.D., Rhode Island, 1981
James W. Anderson, professor, M.D., Northwestern, 1961
Shirish Barve, assistant professor, Ph.D., Kentucky, 1990
Rolando Berger, professor, M.D., San Carlos, 1974
David C. Booth, professor, M.D., Texas, 1974
Leslie B. Branch, associate professor (part-time), M.D., North Carolina, 1965
James S. Bryson, assistant professor, Ph.D., Ball State, 1980
Mary Burke, assistant professor, M.D., Illinois, 1984
N. K. Burki, professor, M.D., Pakistan, 1962; Ph.D., London, 1969
Andrew Bustin, assistant professor, M.D., Illinois, 1973
Timothy S. Caudill, assistant professor, M.D., Kentucky, 1985
Rajender K. Chawla, professor, Ph.D., Georgia Tech, 1969
Craig A. Chasen, associate professor, M.D., SUNY, Syracuse, 1979
Gregory Clarke, assistant professor, M.D., Indiana, 1986
Kelly K. Cole, assistant professor, M.D., Kentucky, 1987
Robert W. Collins, assistant professor, M.S., Kentucky, 1986
Andrew Cross, assistant professor, M.D., SUNY, 1987
W. Patrick Davey, assistant professor (part-time), M.D., Washington University, 1981
Robert T. Davis, associate professor, M.D., Louisville, 1976
Frederick C. DeBeer, professor, M.D., South Africa, 1983
Mary C. Deletter, assistant professor (part-time), Ph.D., Kentucky, 1991
Philip DeSimone, professor, M.D., Vermont, 1967
Michael Doukas, associate professor, M.D., Johns Hopkins, 1976
Rita Egan, assistant professor, M.D., Ohio, 1983
Kimberly R. Emmett, assistant professor, M.D., Kentucky, 1987
David A. Escalante, assistant professor (part-time), M.D., Mexico, 1987
Martin E. Evans, associate professor, M.D., Virginia, 1976
Paolo Fanti, assistant professor, M.D., Bologna, Italy, 1979
Marie Claude Faugere, associate professor, M.D., France, 1973
Roger A. Fleischman, associate professor, M.D., Harvard, 1976
Donald Fleming, assistant professor, M.D., Louisville, 1986
Barbara Fleming-Phillips, assistant professor, M.D., Wright State, 1982
James Flueck, associate professor, M.D., Minnesota, 1967
Kenneth A. Foon, professor, M.D., Wayne State, 1972
Karen Foster, assistant professor, M.D., Tennessee, 1984
Robert E. French, associate professor, M.D., Ohio State, 1963
Robert M. Friedler, professor, M.D., Chile, 1960
Vincent Gallicchio, professor (part-time), Ph.D., New York, 1986
Lawrence K. Gates, assistant professor, M.D., Duke, 1986
Jacqueline F. Gibson, assistant professor, M.D., Kentucky, 1986
Richard J. Glassock, professor, M.D., UCLA, 1960
Richard N. Greenberg, associate professor, M.D., Tufts, 1972
Charles H. Griffith, III, assistant professor, M.D., Vanderbilt, 1988
Guillermo P. Gubbins, assistant professor (part-time), M.D., Cayetano Heredia, Peru, 1984
Mary C. Guiglia, assistant professor (part-time), M.D., Kentucky, 1984
Theodore N. Guiglia, associate professor emeritus, M.D., Louisville, 1956
John C. Gurley, associate professor, M.D., Ohio State, 1980
Gordon P. Guthrie, professor, M.D., Columbia, 1970
Steven A. Haist, associate professor, M.D., Kentucky, 1981
Najim Haq, assistant professor, M.D., Pakistan, 1976
Edward G. Harder, associate professor (part-time), M.D., University of Alberta, Edmonton, Canada, 1968
Collette Hawthorne, assistant professor, M.D., Kentucky, 1987
Daniel B. Hill, assistant professor, M.D., Stockholm, Sweden, 1985
Donald R. Holleman, Jr., assistant professor, M.D., Duke, 1983
James W. Holsinger, professor, M.D., Duke, 1964
Shirley Hughes, associate professor, M.S.W., Pennsylvania, 1960
Connie W. Jenkins, assistant professor, M.D., Kentucky, 1988
William J. John, assistant professor, M.D., Kentucky, 1981
Bann Kang, professor, M.D., Daegu, Korea, 1963
Dennis Karounos, assistant professor, M.D., Kentucky, 1980

Neil E. Kay, professor, M.D., Manitoba, 1968
Charles A. Kennedy, assistant professor, M.D., Southern California, 1985
Nicholas J. Koszewski, assistant professor, Ph.D., Iowa State, 1988
Stephen Kraman, professor, M.D., Puerto Rico, 1973
Chien-Suu Kuo, associate professor, M.D., National Taiwan University, 1963
Ullin W. Leavell, professor (part-time), M.D., Duke, 1945
Fabio Leonelli, assistant professor, M.D., Italy, 1977
Robert W. Lightfoot, professor, M.D., Vanderbilt, 1961
Shantae L. Lucas, instructor (part-time), M.D., Kentucky, 1991
Cheryl Mahony, assistant professor, M.D., Duke, 1976
Hartmut H. Malluche, professor, M.D., Goethe University, 1969
Paul Mandlestam, professor, M.D., Harvard, 1950; Ph.D., Harvard, 1953
Ewa Marciniak, professor, M.D., Wroclow, 1951; Ph.D., Wroclow, 1956
Luis Marsano, assistant professor, M.D., Peru, 1979
Lloyd D. Mayer, professor (part-time), M.D., Louisville, 1944
Alberto Mazzoleni,* associate professor, M.D., Milan, Italy, 1952
Craig J. McClain, professor, M.D., Tennessee, 1972
James R. McCormick, professor, M.D., Connecticut, 1972
Malkanthie I. McCormick, associate professor, M.B.B.S., Ceylon, 1967
John W. McKeown, associate professor, M.D., Tennessee, 1973
Robin R. Meek, assistant professor (part-time), M.D., West Virginia, 1984
Timothy C. Meeker, associate professor, M.D., UCLA, 1978
Ira F. Mersack, associate professor (part-time), M.D., Kentucky, 1966
Ralph Miller, associate professor, M.D., Harvard, 1961; Sc.D.,Harvard, 1969
Richard S. Morehead, assistant professor, M.D., Oklahoma, 1988
John C. Morgenstern, assistant professor, M.D., New Jersey, 1987
Peter Morris, assistant professor, M.D., Cornell, 1985
Sybille Muller, associate professor, Ph.D., Berlin, W. Germany, 1977
Rita K. Munn, assistant professor, M.D., Kentucky, 1984
Bernard Cho-Kwan Ngai, associate professor, M.D., Texas, 1982
Nicholas J. Nickl, assistant professor, M.D., Tennessee, 1982
Robert Noble, professor, M.D., Duke, 1964
Barbara Phillips, professor, M.D., Kentucky, 1977; M.S.P.H., Kentucky, 1991
Gordon L. Phillips, professor, M.D., Oklahoma, 1971
Mary Ramsbottom-Lucier, assistant professor, M.D., Canada, 1985
Donna E. Reece, associate professor, M.D., Texas, 1978
Eugene C. Rich, professor, M.D., Washington University, 1977
Edward Romond, associate professor, M.D., Kentucky, 1977
Antoinette R. Saddler, assistant professor, M.D., Ohio, 1986
Peter Sapin, assistant professor, M.D., California, 1975
Boutros Sawaya, assistant professor, M.D., Latakia, Syria, 1981
Ronald J. Saykaly, professor (part-time), M.D., California-Los Angeles, 1969
Eileen Scherl, professor, M.D., Maryland, 1973
Jack Schmidt, assistant professor, Ph.D., Pennsylvania, 1969
Robert Schosser, associate professor, M.D., Louisville, 1970
Samuel R. Scott, professor, M.D., Bowman Gray, 1969
Steven Shedlofsky, associate professor, M.D., Michigan, 1974
Mikel Smith, professor, M.D., Kentucky, 1977
Nancy J. Stiles, assistant professor, M.D., Texas, 1986
Tibor S. Szabo, assistant professor, M.D., Szeged, Hungary, 1978
John S. Thompson, professor, M.D., Chicago, 1953
Dale Toney, assistant professor, M.D., Kentucky, 1987
Robert Truitt, assistant professor, M.D., Louisville, 1984
Christine L. Tully, assistant professor, M.D., Universita di Roma, Rome, Italy, 1979
Alexander E. Tzouanakis, assistant professor, M.D., Texas, 1988
Gary W. Varilek, assistant professor, M.D., Nebraska, 1983
Thomas Waid, assistant professor, M.D., Kentucky, 1980
Chris Warnimont, instructor (part-time), M.D., New York, 1990
Nathan A. Watson, Jr., instructor (part-time), M.D., Texas, 1991
Michelle Wrightson, assistant professor, M.D., Kentucky, 1987
Gong Yuan Xie, assistant professor, M.D., Shanghai, 1971

*adjunct appointment

## MICROBIOLOGY AND IMMUNOLOGY

Alan M. Kaplan, chair

Yousef Abu Kwaik, assistant professor, Ph.D., SUNY, 1991
Charles T. Ambrose, professor, M.D., Johns Hopkins, 1955
Malaya Bhattacharya-Chatterjee, associate professor, Ph.D., Calcutta, India, 1969
Donald P. Biek, assistant professor, Ph.D., Utah, 1983
Subbarao Bondada, associate professor, Ph.D., Bombay, 1976
Donald A. Cohen, associate professor, Ph.D., Cincinnati, 1979
Richard Cross, assistant professor, Ph.D., Kentucky, 1981
Jeffrey Davidson, professor, Ph.D., Harvard, 1976
Louis Edward DeMoll, assistant professor, Ph.D., Texas, Austin, 1982
Lucinda H. Elliott, assistant professor, Ph.D., Kentucky, 1975
Jacqueline D. Fetherston, assistant professor, Ph.D., Washington, 1981
Robert J. Jacob, associate professor, Ph.D., Syracuse, 1974
Alan M. Kaplan, professor, Ph.D., Purdue, 1969
Heinz Kohler, professor, M.D., Ph.D., Munich, Germany, 1965
Thomas T. Lillich,* professor, Ph.D., North Carolina, 1968
Joseph P. McGillis, assistant professor, M.D., George Washington, 1985
Robert D. Perry, associate professor, Ph.D., Michigan State, 1978
Thomas L. Roszman, professor, Ph.D., Michigan State, 1966
Jesse E. Sisken, professor, Ph.D., Columbia, 1957
E. Charles Snow, associate professor, Ph.D., Iowa, 1978
Brett T. Spear, assistant professor, Ph.D., Pennsylvania, 1985
Marion R. Steiner, associate professor, Ph.D., Kentucky, 1968
Susan C. Straley, professor, Ph.D., Cornell, 1972
H. Earle Swim, professor emeritus, Ph.D., Western Reserve, 1952
Jerold Woodward, associate professor, Ph.D., Utah, 1979
Stephen G. Zimmer, associate professor, Ph.D., Colorado, 1973
JiaYou Zhang, assistant professor, Ph.D., Texas, 1989

*joint appointment

## NEUROLOGY

Joseph R. Berger, chair

Robert J. Baumann, professor, M.D., Case Western Reserve, 1965
Joseph R. Berger, professor, M.D., Jefferson, 1974
Krzysztof Kadzielawa, assistant professor, Ph.D., Warsaw, 1965; M.D., Warsaw, 1970
Edward J. Kasarskis, Jr., professor, M.D., Wisconsin, 1974; Ph.D., Wisconsin, 1975
Douglas J. Lanska, associate professor, M.D., Wisconsin, 1984
Mary G. Leonidakis, professor emeritus, M.S.S.W., Columbia, 1949
Andrew D. Massey, associate professor, M.D., Kansas, 1977
Kevin R. Nelson, associate professor, M.D., Michigan, 1979
L. Creed Pettigrew, associate professor, M.D., Texas at Galveston, 1980
Frederick H. Schmitt, associate professor, Ph.D., Akron, 1982
John T. Slevin, professor, M.D., West Virginia, 1975
Charles D. Smith, associate professor, M.D., Tulane, 1979

## OBSTETRICS AND GYNECOLOGY

Franklin C. Miller, chair

Cheryl L. Bailey, instructor, M.D., Minnesota, 1990
Anjan K. Bhattacharyya, assistant professor, Ph.D., Arizona, 1986
B. Blake Bradley, associate professor (part-time), M.D., Indiana, 1983
Stephen L. Buckley, instructor, M.D., Kentucky, 1988
Berry Campbell, assistant professor, M.D., South Carolina, 1985
Shawn Campbell, assistant professor (part-time), M.D., Mississippi, 1985
Sunil Chatterjee, associate professor, Ph.D., Calcutta, India, 1966
Delwood C. Collins, professor, Ph.D., Georgia, 1966
Thomas E. Curry, Jr., associate professor, Ph.D., East Carolina, 1983
Paul DePriest, assistant professor, M.D., Kentucky, 1985
M. Todd Fontenot, instructor, M.D., Louisiana State, 1990
Holly H. Gallion, associate professor, M.D., Kentucky, 1979
John W. Greene, Jr., professor emeritus (part-time), M.D., Pennsylvania, 1952
W. David Hager, professor (part-time), M.D., Kentucky, 1972
Karen Harris, instructor, R.D.M.S., St. Joseph Hospital, 1987
Joseph Kennedy, instructor, M.D., Tufts, 1990
Franklin C. Miller, professor, M.D., Louisville, 1962
Douglas Milligan, assistant professor, M.D., Colorado, 1982
Shona Murray, instructor, M.D., Ontario, 1988
Kenneth N. Muse, Jr., associate professor, M.D., Kentucky, 1978
Edward J. Pavlik, associate professor, Ph.D., Tennessee, 1975
John A. Read, professor, M.D., UCLA, 1972
T. Timothy Smith, assistant professor, Ph.D., Hawaii, 1990
Velma V. Taormina, instructor (part-time), M.D., Texas Tech, 1990
John R. van Nagell, Jr., professor, M.D., Pennsylvania, 1967
Emery A. Wilson, professor, M.D., Kentucky, 1968

## OPHTHALMOLOGY

Robert S. Baker, chair

Robert S. Baker, professor, M.D., McMaster, 1975
John R. Bierly, assistant professor, M.D., Cornell, 1986
John D. Conklin, assistant professor, M.D., Kentucky, 1987
David E. Cowen, assistant professor, M.D., Kentucky, 1988
Barbara K. Crutchfield, instructor, O.D., Indiana, 1990
Patricia L. Davis, assistant professor, M.D., Pennsylvania, 1987
John W. Garden, professor (part-time), M.D., North Carolina, 1961
Neil Katz, assistant professor, M.D., New York, 1991
Richard A. Kielar, professor (part-time), M.D., Cincinnati, 1962
Maher Madhat, assistant professor, Ph.D., Kentucky, 1988
P. Andrew Pearson, assistant professor, M.D., Cincinnati, 1987
Sheila P. Sanders, assistant professor, M.D., Kentucky, 1989
Elmar T. Schmeisser, associate professor, Ph.D., Florida, 1980
Harsha A. Sen, assistant professor, M.D., North Carolina, 1986
Julia L. Stevens, assistant professor, M.D., Duke, 1983

*joint appointment

## PATHOLOGY AND LABORATORY MEDICINE

Deborah E. Powell, chair

Kathryn M. Albers, assistant professor, Ph.D., SUNY at Stony Brook, 1985
Paul Bachner, professor, M.D., Columbia, 1963
Robert A. Blouin,* associate professor, Phm.D., Kentucky, 1978
Nancy S. Braun, assistant professor (part-time), M.D., Illinois, 1989
Mary H. Chandler,* assistant professor, Phm.D., Kentucky, 1985
Michael L. Cibull, associate professor, M.D., Illinois, 1973
Carolyn M. Coyne, assistant professor, M.D., Louisiana State, 1981
Douglas D. Damm,* associate professor, D.D.S., Louisiana State, 1977
Diane D. Davey, associate professor, M.D., Washington University, St. Louis, 1981
Daron G. Davis, associate professor, M.D., Kentucky, 1982
Larry G. Dickson, professor, M.D., Wayne State, 1956
James F. Drummond,* professor, D.D.S., St. Louis, 1963
Gilbert H. Friedell, professor, M.D., Minnesota, 1950
Richard H. Geissler, instructor, B.S., Pennsylvania, 1974
Norman L. Goodman, professor, Ph.D., Oklahoma, 1965
John C. Hunsaker III, associate professor, M.D., Kentucky, 1977, J.D., Kentucky, 1967
C. Darrell Jennings, Jr., associate professor, M.D., Kentucky, 1977
James E. Johnson, associate professor, Ph.D., Oklahoma, 1974
Charlotte Kaetzel, associate professor, M.D., Ph.D., Maryland, 1979
Eun Young Lee, assistant professor, M.D., Seoul, Korea, 1978
William R. Markesbery, professor, M.D., Kentucky, 1964
Isabel Mellon, assistant professor, Ph.D., Chicago, 1984
Bonnie L. Mitchell, associate professor, M.D., Washington University, St. Louis, 1976
Jennifer L. K. Morrow, assistant professor, Ph.D., Kentucky, 1984
Yolanda M. Musgrave, instructor, M.D., Kentucky, 1988
William N. O'Connor, professor, M.D., National University of Ireland, Cork, Ireland, 1972
Peter R. Oeltgen, associate professor, Ph.D., Loyola, 1973
Timothy L. Overman, associate professor, Ph.D., Cincinnati, 1971
Martha L. Peterson, assistant professor, Ph.D., Wisconsin, 1984
Anjana L. Pettigrew, assistant professor, M.D., Baylor, 1983
Maura Pieretti, assistant professor, Ph.D., Perugia, Italy, 1989
William H. Porter, professor, Ph.D., Vanderbilt, 1970
Deborah E. Powell, professor, M.D., Tufts, 1965
Ralph D. Powell, professor, M.D., Boston, 1958
Irene E. Roeckel, professor (part-time), M.D., Heidelberg, West Germany, 1948
Robert R. Sloss, associate professor, M.D., Louisville, 1974
David L. Sparks, associate professor, Ph.D., South Carolina, 1982
Norbert W. Tietz, professor, Ph.D., Technical University of Stuttgart, Germany, 1950
A. Sergio Torloni, assistant professor, M.D., University of Brasilia, 1980
Denise M. Tritz, assistant professor, M.D., Missouri, 1987
Mitchell S. Turker, associate professor, Ph.D., University of Washington, 1984
Julia A. Weeks, assistant professor, M.D., Nebraska, 1980
M. Elyse Wheeler, assistant professor, Ph.D., Oklahoma, 1984
Dean K. White,* professor, D.D.S., Louisiana State, 1977
Ronald J. Whitley, associate professor, Ph.D., Georgia Tech, 1975
Dianne Wilson, assistant professor, M.D., Kentucky, 1977
Kokichi Yoneda, professor, M.D., Nara Medical College, Japan, 1968

*joint appointment

## PEDIATRICS

Vipul N. Mankad, chair

Nancy Bishof, assistant professor, M.D., Rush-Presbyterian-St. Luke's Medical Center, 1984
Nancy S. Braun, assistant professor (part-time), M.D., Illinois, 1989
Katherine L. Bright, assistant professor (part-time), M.D., Kentucky, 1976
Robert A. Broughton, associate professor, M.D., Bowman Gray, 1976
Margaret C. Bruce, associate professor, Sc.D., Harvard, 1978
Ronald G. Cadle,** instructor, M.S., Sarah Lawrence, 1983
Rebecca A. Collins, assistant professor, M.D., Kentucky, 1986
Carol M. Cottrill, professor, M.D., Cincinnati, 1971
Sandra L. D'Angelo, assistant professor, Ph.D., Kentucky, 1989
Nirmala S. Desai, professor, M.B.B.S., Baroda, India, 1966
Gerald A. Ferretti,* professor, D.D.S., Georgetown, 1976
Doane Fischer, professor (part-time), M.D., Temple, 1947
Abe R. Fosson, professor, M.D., Vanderbilt, 1964
John D. Geil, associate professor, M.D., Kentucky, 1976
Kenneth L. Gerson, associate professor (part-time), M.D., Ohio State, 1958
Martha F. Greenwood, associate professor, M.D., Kentucky, 1968
Donna J. G. Grigsby, assistant professor, M.D., East Tennessee, 1986
Bryan D. Hall, professor, M.D., Louisville, 1965
Elizabeth C. Jackson, associate professor, M.D., Virginia, 1978
Gregory L. Johnson, professor, M.D., Washington University, St. Louis, 1971
Jamshed Kanga, associate professor, M.B.B.S., Dow University of Karachi, Pakistan, 1976
Janice K. Kregor, assistant professor (part-time), M.D., Kentucky, 1981
Robert J. Kuhn,* associate professor, Pharm.D., Texas, Austin, 1984
JoAnne M. Leahy-Auer, assistant professor, M.D., Belgium, 1983
Barnett W. Lewis, assistant professor (part-time), M.D., Duke, 1970
C. Charlton Mabry, professor, M.D., Emory, 1954
Noble T. MacFarlane, professor (part-time), M.D., Virginia, 1953
Grace Maguire, associate professor (part-time), M.D., Vermont, 1974
Vipul N. Mankad, professor, M.D., Maharaja Sayajiran, India, 1966
Laura J. Marburger, assistant professor, M.D., Indiana, 1990
Francis M. McCaffrey, assistant professor, M.D., Pennsylvania, 1980
Richard J. Mier, associate professor, M.D., Chicago, 1973
Wayne W. Myers, professor, M.D., Rochester, 1966
Jacqueline A. Noonan, professor, M.D., Vermont, 1954
Mark Parrott, assistant professor, M.D., Kentucky, 1981
Thomas H. Pauly, associate professor, M.D., Kentucky, 1974
John J. Piecoro, Jr.,* professor, Phm.D., Kentucky, 1978
Susan Pollack, assistant professor, M.D., Eastern Virginia, 1984
Jackie Sampers, instructor (part-time), Ph.D., Maryland, 1993
Lori A. Shook, assistant professor, M.D., Creighton, 1983
W. Jackson Smith, assistant professor, M.D., Duke, 1982
Carol L. Steltenkamp, assistant professor (part-time), M.D., Cincinnati, 1987
Jana Stockwell, assistant professor, M.D., Southwestern, 1986
James G. Straub, assistant professor (part-time), M.D., Kentucky, 1971
Ellen Sutherland, assistant professor, M.D., Kentucky, 1983
H. Mac Vandiviere, professor emeritus (part-time), M.D., North Carolina, 1960
John W. Walker, assistant professor, D.O., West Virginia School of Osteopathic Medicine, 1985
Linda R. Walters, associate professor, M.D., Indiana, 1962
Heinrich A. Werner, assistant professor, M.D., Germany, 1984
Betty I. Wolf, associate professor, M.D., Chicago, 1965
Peter Wong, associate professor, M.D., Burma, 1968
Sheila H. Woods, assistant professor, M.D., Kentucky, 1979
Thomas L. Young, assistant professor, M.D., Louisville, 1976

*joint appointment

**adjunct appointment

## PHARMACOLOGY

Philip W. Landfield, chair

Rosemarie M. Booze, associate professor, Ph.D., Johns Hopkins, 1985
John M. Carney, associate professor, Ph.D., Michigan, 1976
Kuey-Chu Chen, assistant professor, Ph.D., California, 1983
T. Z. Csaky, professor emeritus, M.D., Budapest, 1939
Donald F. Diedrich, professor (part-time), Ph.D., Wisconsin, 1959
James W. Flesher, professor, Ph.D., Loyola, 1958
Helmut A. Gordon, professor emeritus, M.D., Budapest, 1932
Robert W. Hadley, assistant professor, Ph.D., Michigan State, 1987
Harris Isbell, professor emeritus, M.D., Tulane, 1934
Edgar T. Iwamoto, professor, Ph.D., California, San Francisco, 1973
David M. Kaetzel, Jr., assistant professor, Ph.D., Maryland, 1981
Philip W. Landfield, professor, Ph.D., California at Irvine, 1971
Andreas F. Lehner, assistant professor, Ph.D., Penn State, 1982
Nancy Pedigo, assistant professor, Ph.D., Tulane, 1986
Norman W. Pedigo, associate professor, Ph.D., Virginia Commonwealth, 1977
Michael T. Piascik, associate professor, Ph.D., Ohio State, 1978
Nada Micovic Porter, assistant professor, Ph.D., Illinois, 1987
Mary Vore, professor, Ph.D., Vanderbilt, 1972

## PHYSICAL MEDICINE AND REHABILITATION

Richard Salcido, chair

James W. Atchison, assistant professor, D.O., Ohio, 1987
C. Dwight Auvenshine, associate professor, Ph.D., Missouri, 1962
Robert B. Baumann,* associate professor, M.D., Case Western, 1965
David L. Cowen, professor, M.D., Colorado, 1959
Gerald V. Klim, associate professor, D.O., Philadelphia, 1980
Noble T. MacFarlane,* professor, M.D., Virginia, 1953
Susan M. McDowell, assistant professor, M.D., Georgia, 1990
Robert B. Nickerson, assistant professor, M.D., Georgia, 1989
Helen M. O'Donnell, assistant professor, M.D., New York, 1980
Richard Salcido, associate professor, M.D., Mexico, 1985
Randal E. Schleenbaker, assistant professor, M.D., Loma Linda, 1986
David B. Stevens,* professor, M.D., Northwestern, 1955
Phillip A. Tibbs,* professor, M.D., Kentucky, 1973

*joint appointment

## PHYSIOLOGY

Phyllis M. Wise, chair

Barbara A. Birge, instructor (part-time), M.S., Kentucky, 1969
Louis L. Boyarsky, professor emeritus, Ph.D., Chicago, 1948
Nausherwank Burki,* professor, M.D., Pakistan, 1962; Ph.D., London, 1969
John N. Diana, professor, Ph.D., Louisville, 1965
R. Thomas Dowell, professor, Ph.D., Iowa, 1971
Joseph Engelberg, professor emeritus, Ph.D., Pennsylvania, 1958
Steven Estus, assistant professor, Ph.D., Case Western, 1989
Jeff C. Falcone, assistant professor, Ph.D., Indiana, 1989
Donald T. Frazier, professor, Ph.D., Kentucky, 1964
Thomas V. Getchell, professor, Ph.D., Northwestern, 1969
David Gross,* professor, Ph.D., Ohio State, 1974
Henry R. Hirsch, professor, Ph.D., Massachusetts Institute of Technology, 1960
Brian A. Jackson, associate professor, Ph.D., Sheffield, England, 1977
S. J. Lai-Fook,* professor, Ph.D., Washington, 1972
Lu-Yuan Lee, professor, Ph.D., Mississippi, 1975
Sandra J. Legan, professor, Ph.D., Michigan, 1974
Timothy S. McClintock, assistant professor, Ph.D., Florida, 1989
Douglas G. McMahon, assistant professor, Ph.D., Virginia, 1985
Cobern E. Ott, professor, Ph.D., Mississippi, 1971
Ok-Kyong Park-Sarge, assistant professor, Ph.D., Illinois, 1988
Bertram Peretz, professor, Ph.D., Iowa, 1968
David C. Randall, professor, Ph.D., Washington, 1972
W. Robert Revelette,** associate professor, Ph.D., Miami, 1983
Daniel R. Richardson, professor, Ph.D., Indiana, 1969
Jonathan Satin, assistant professor, Ph.D., Emory, 1989
Jesse Sisken,* professor, Ph.D., Columbia, 1957
Dexter F. Speck, associate professor, Ph.D., Loyola, 1980
Paul A. Thornton,* associate professor emeritus, Ph.D., Michigan State, 1956
Edward H. Timmons,** associate professor, D.V.M., M.M.S., Georgia, 1963
Stuart Ware,* assistant professor, Ph.D., Iowa State, 1980
David R. Wekstein, professor, Ph.D., Rochester, 1962
Phyllis M. Wise, professor, Ph.D., Michigan, 1972
Fred W. Zechman, Jr., professor emeritus, Ph.D., Duke, 1956
James F. Zolman, professor, Ph.D., California, Berkeley, 1963

*joint appointment

** adjunct appointment

## PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Terence R. Collins, chair

Philip Berger,* professor, Ph.D., Martin School, 1969
Steven Browning, assistant professor, Ph.D., North Carolina, 1994
Henry P. Cole,* professor, Ph.D., SUNY at Buffalo, 1968
Terence R. Collins, professor, M.D., Creighton, 1962; M.P.H., California, Los Angeles, 1973; M.P.S., Loyola, 1987
Deborah Danner, assistant professor, Ph.D., Kentucky, 1993
Ramesh Gupta, professor, Ph.D., University of Roorkee, India, 1972
Sanford W. Horstman, associate professor, Ph.D., Cincinnati, 1971
James E. Johnson, associate professor (part-time), Ph.D., Tennessee, 1955
Loyd Kepferle, assistant professor, Ph.D., Kansas, 1965
Paul Kingery,* assistant professor, Ph.D., Oregon, 1988
Kathryn Luchok, assistant professor, Ph.D., North Carolina, 1993
Robert H. McKnight, assistant professor, Sc.D., Johns Hopkins, 1984
Susan Pollack,* assistant professor, M.D., East Virginia, 1984
Ted P. Raybould,* associate professor, D.M.D., Kentucky, 1981
Robert Rubeck,** assistant professor, ME.d., SUNY at Buffalo, 1969; Ph.D., Ohio State, 1973
David A. Snowdon, associate professor, M.P.H., Minnesota, 1977; Ph.D., Minnesota, 1981
Henry Troyer, assistant professor (part-time), Ph.D., West Virginia, 1971
Thomas Tucker,* associate professor, M.P.H., Michigan, 1982
H. Spencer Turner, professor, M.D., Ohio State, 1963

*joint appointment

**adjunct appointment

## PSYCHIATRY

Verner Stillner, chair

Susan Abbott-Jamison,* associate professor, Ph.D., North Carolina, 1974
Billie S. Ables, professor emeritus, Ph.D., Purdue, 1954
J. Wesson Ashford, associate professor, M.D., Ph.D., UCLA, 1974
Robert G. Aug, professor, M.D., Cincinnati, 1955
Cornelia Bingcang, assistant professor, M.D., Far Eastern University, Manila, Philippines, 1964
Alan Brenzel, assistant professor, M.D., Louisville, 1988
Anne M. Cattarello, assistant professor, M.D., Kentucky, 1986
Robin A. Fields, assistant professor, M.D., Missouri, 1989
Edward Foulks, professor (part-time), M.D., McGill, 1962; Ph.D., Pennsylvania, 1972
Teresa G. Gevedon, assistant professor, M.D., Kentucky, 1983
Theodore M. Godlaski, assistant professor, M.S., St. Mary's Theological, 1972
Katherine E. Halmi, professor (part-time), M.D., Iowa, 1965
Stanley Hammons, professor (part-time), M.D., Louisville, 1960
Lon R. Hays, associate professor, M.D., Kentucky, 1982
William Heffron, associate professor, M.D., Kentucky, 1972
Kelly K. Hill, assistant professor, M.D., Marshall, 1986
Laurie L. Humphries, professor, M.D., Emory, 1973
Mark C. Hyatt, associate professor, M.D., Mayo, 1981
Janet H. Jones,** assistant professor, M.D., Kentucky, 1971
H. Otto Kaak, professor, M.D., Michigan, 1964
Robert F. Kraus, professor, M.D., Medical College of Wisconsin, 1955
Carl G. Leukefeld, professor, D.S.W., Catholic University of America, Washington, D.C., 1975
Robert A. Littrell,* assistant professor, Phm.D., Kentucky, 1988
Arnold M. Ludwig, professor, M.D., Pennsylvania, 1958
Catherine A. Martin, associate professor, M.D., Kentucky, 1976
Walter L. Martin, assistant professor (part-time), M.D., Kentucky, 1982
Edward N. Maxwell, Jr., associate professor, M.D., Kentucky, 1971
Barbara McGee, assistant professor (part-time), M.D., Chicago, 1988
Thomas Miller, professor, Ph.D., New York, 1971
Jo Ann Myers, assistant professor, M.D., M.P.H., Washington, 1985
Daniel D. Nahum, associate professor, M.D., Hacettepe, Ankara, Turkey, 1970
John R. Neill, associate professor, M.D., Maryland, 1973
Timothy Nolan,** assistant professor, M.D., Vanderbilt, 1977
James C. Norton, associate professor, Ph.D., Arizona, 1970
Richard A. Pounds, assistant professor, M.D., Texas, 1988
Donald E. Ralph, professor, M.D., Catholic University, 1965
John D. Ranseen, associate professor, Ph.D., Ohio University, 1982
Myron G. Sandifer, professor (part-time), M.D., Harvard, 1947
Verner Stillner, professor, M.D., Wayne State, 1967; M.P.H., Johns Hopkins, 1970
Hugh A. Storrow, professor (part-time), M.D., Southern California, 1950
Marian Swope, assistant professor, M.D., Kentucky, 1989
Lane J. Veltkamp, Jr., professor, M.S.W., Michigan State, 1964
Richard J. Welsh, professor, M.S.W., Iowa, 1966

*joint appointment

**adjunct appointment

## RADIATION MEDICINE

Mohammed Mohiuddin, chair

John Calkins, professor emeritus, Ph.D., Texas, 1963
Ralph Christensen,* associate professor, Ph.D., California-Berkeley, 1971
George A. Digenis,* professor, Ph.D., Wisconsin, 1964
Jose M. Feola, associate professor, Ph.D., Minnesota, 1974
Patrick M. Francke, instructor, M.D., Louisville, 1990
Vincent Gallicchio,* associate professor, Ph.D., New York, 1986
Niranjan Goud, assistant professor, Ph.D., Osmania, India, 1980
Geoffrey S. Ibbott, assistant professor, Ph.D., Colorado, 1993
Amtullah Khan, assistant professor, M.D., Frontier College, Peshawar, Pakistan, 1974
Carol Kramer, assistant professor, M.D., Temple, 1985
Ali S. Meigooni, assistant professor, Ph.D., Ohio, 1984
Mohammed Mohiuddin, professor, M.D., India, 1968
Pushpa M. Patel, associate professor, M.D., Bombay University, India, 1974
Igor G. Rayevsky, instructor (part-time), M.D., Moscow, 1952; Ph.D., Moscow, 1967
William F. Regine, assistant professor, M.D., SUNY, 1987
Marguerite Sellitti, instructor, M.D., New York, 1988
Muneyasu Urano, professor, M.D., Kyoto Prefectural University, Japan, 1962; Ph.D., Kyoto Prefectural University, Japan, 1968
Justine Yoneda, associate professor, M.D., SUNY-Downstate, 1975

*joint appointment

## SURGERY

A. Byron Young, chair

Rao M. Adibhatla, assistant professor, Ph.D., India, 1984
James R. Andrews, professor (part-time), M.D., Louisiana State, 1967
Sanford M. Archer, assistant professor, M.D., Chicago, 1983
Warwick Arden, assistant professor, Ph.D., Kentucky, 1993
Deborah A. Blades, assistant professor, M.D., Case Western, 1986
Erwin R. Boghaert, assistant professor, M.D., State University of Ghent, 1982
Luis E. Bolano, assistant professor, M.D., Baylor, 1986
Thomas D. Brower, professor emeritus (part-time), M.D., Washington University, 1947
Ronald C. Burgess, associate professor, M.D., Wayne State, 1978
James M. Burgett,* assistant professor, Ph.D., Minnesota, 1988
David N. Caborn, assistant professor, M.D., Manchester, England, 1981

Jeffrey P. Campbell, assistant professor, M.D., North Carolina, 1988
William E. Charash, assistant professor, M.D., Cornell, 1984
Sufan C. Chien, associate professor, M.D., Shanghai, China, 1962
Khalid Chowdhury, assistant professor, M.D., Saskatchewan, 1982
D. Kay Clawson, professor (part-time), M.D., Harvard, 1952
William J. Clerici, assistant professor, Ph.D., South Carolina, 1988
Lisa T. Degnore, assistant professor, M.D., Michigan, 1986
Jeffrey B. Dembo,* associate professor, D.D.S., Northwestern, 1981
Robert J. Dempsey, professor, M.D., Chicago, 1977
A. Louise Diana, assistant professor, Ph.D., Louisville, 1966
Michael Donnelly, associate professor, Ph.D., Loyola, 1971
Eric D. Endean, associate professor, M.D., Michigan, 1980
Carol Fowler, assistant professor, M.D., Louisiana State, 1979
James W. Freeman, associate professor, Ph.D., Kentucky, 1983
Marilyn L. Getchell, professor, Ph.D., Northwestern, 1971
James F. Glenn, professor (part-time), M.D., Duke, 1952
Arthur A. Gonty,* associate professor, D.D.S., Marquette, 1968
John T. Gorczyca, assistant professor, M.D., Boston, 1987
William W. Green, professor, Ph.D., Case Western Reserve, 1970
Ward O. Griffen, Jr., professor (part-time), M.D., Cornell, 1953
David Gross, professor, Ph.D., Ohio State, 1974
Patrick F. Hagihara, professor, M.D., Albany, 1960
Matthew B. Hall,* professor, M.D., Hahnemann, Pennsylvania, 1977
Jimmie Hatton,* associate professor, Ph.D., Kentucky, 1984
Richard Haydon, assistant professor, M.D., Virginia, 1978
Jonathan E. Hodes, assistant professor, M.D., Indiana, 1980
Gordon L. Hyde, professor, M.D., Michigan, 1957
Mary L. Ireland, assistant professor (part-time), M.D., Tennessee, 1978
Darren L. Johnson, assistant professor, M.D., California, 1987
Steven B. Johnson, assistant professor, M.D., Virginia, 1982
Raleigh O. Jones, Jr., associate professor, M.D., Kentucky, 1980
Herbert Kaufer, professor, M.D., Michigan, 1959
Paul A. Kearney, associate professor, M.D., Jefferson, 1980
Daniel E. Kenady, professor, M.D., Georgetown, 1972
N. S. Rama Krishna, assistant professor, Ph.D., India, 1989
Bruce A. Lucas, professor, M.D., Duke, 1965
Edward A. Luce, professor, M.D., Kentucky, 1965
Terry R. Malone,* associate professor, Ed.D., North Carolina, 1985
Robert D. Marciani,* professor, D.M.D., New Jersey, 1966
Porter Mayo, professor (part-time), M.D., Louisville, 1946
Patrick C. McGrath, associate professor, M.D., Illinois, 1980
J. William McRoberts, professor, M.D., Cornell, 1959
Larry C. Munch, assistant professor, M.D., Kentucky, 1983
Paul J. Nicholls, professor, M.D., Georgia, 1971
Timothy J. Nypaver, assistant professor, M.D., Loyola, 1985
Bin-Tao Pan, assistant professor, Ph.D., McGill, 1982
Roy A. Patchell, associate professor, M.D., Kentucky, 1979
David Pienkowski, assistant professor, Ph.D., Pennsylvania, 1982
Renuka M. Prasad, associate professor, Ph.D., Indian Institute of Science, 1977
Kevin J. Pugh, assistant professor, M.D., Iowa, 1988
Andrew R. Pulito, professor, M.D., Columbia, 1969
Riffat H. Qadir, assistant professor, M.D., Louisville, 1986
Vivek M. Rangnekar, assistant professor, Ph.D., Bombay, India, 1983
Dinesh Ranjan, associate professor, M.D., India, 1978
Robert P. Rapp,* professor, Pharm.D., Kentucky, 1970
Malcolm C. Robinson, assistant professor, M.B., Ch.B., Otago, 1970
Janet B. Rodgers, assistant professor (part-time), D.V.M., Colorado State, 1980
Robert K. Salley, associate professor, M.D., Louisiana State, 1977
Thomas H. Schwarcz, associate professor, M.D., Ohio State, 1979
Richard W. Schwartz, associate professor, M.D., Virginia, 1979
Michael E. Sekela, associate professor, M.D., Albert Einstein, 1981
Robert Shapiro,* associate professor, Ph.D., Illinois, 1979
David A. Sloan, assistant professor, M.D.C.M., University of Montreal, 1977
G. Christopher Stephens, assistant professor, M.D., Vanderbilt, 1988
David B. Stevens, professor, M.D., Northwestern, 1955
William E. Strodel, professor, M.D., Michigan, 1973
Phillip Tibbs, professor, M.D., Kentucky, 1973
Joseph Valentino, assistant professor, M.D., New Jersey, 1987
Keith D. VandenBrink, associate professor, M.D., Iowa, 1961
Henry C. Vasconez, associate professor, M.D., Central University Medical School, Quito, Ecuador, 1978
Janet L. Walker, assistant professor, M.D., South Florida, 1981
Benjamin C. Warf, assistant professor, M.D., Harvard, 1984
Mark D. Wells, assistant professor, M.D., Queens University, 1983
David P. Wood, assistant professor, M.D., Michigan, 1983
A. Byron Young, professor, M.D., Kentucky, 1965
David M. Yurek, assistant professor, Ph.D., California, 1986
Thomas N. Zweng, assistant professor, M.D., UCLA, 1984

*joint appointment

## COLLEGE OF NURSING

Carolyn A. Williams, dean

Brenda Alexander, instructor, M.S.N., Ohio State, 1987
Ruth Assell, associate professor, M.S., Colorado, 1966
Sharon Barton, assistant professor, Ph.D., Loyola, 1994
Ruth D. Berry, assistant professor, M.S.N., Wayne State, 1964
Patricia Birchfield, associate professor, M.S.N., Kentucky, 1978; D.S.N., Alabama-Birmingham, 1994
Dorothy Brockopp, associate professor, Ph.D., SUNY-Buffalo, 1981
Norma J. Christman, associate professor, Ph.D., Wayne State, 1980
Judith A. Daniels, instructor, M.S.N., Michigan State, 1986
Bernice M. Eades, instructor, M.S.N., Kentucky, 1992
Juanita Fleming, professor, Ph.D., Catholic University, 1969
Teresa A. Free, associate professor, Ph.D., Texas-Austin, 1988
Beatrice Gaunder, associate professor emeritus, M.S.N., SUNY-Buffalo, 1973; M.S.Ed., Niagara, 1973
Evelyn Geller, associate professor emeritus, M.S.N., Catholic University, 1963; M.Ed., Columbia, 1972
Carrie M. Gordy, instructor, M.S.N., Kentucky, 1994
Margaret R. Grier, professor, Ph.D., Texas Woman's University, 1975
Ellen J. Hahn, assistant professor, D.N.S., Indiana, 1992
Lynne A. Hall, associate professor, Dr.P.H., North Carolina-Chapel Hill, 1983
Jane R. Harley, instructor, M.S.N., Kentucky, 1992
Melva Jo Hendrix, professor, D.N.Sc., Boston, 1971
Margaret Hickman, associate professor, Ed.D., Ball State, 1982
Beth Hicks, associate professor emeritus, Ph.D., Texas-Austin, 1987
Vicki P. Hines-Martin, assistant professor, Ph.D., Kentucky, 1994
Vera F. Hopper, instructor, M.S.N., Kentucky, 1993
Brenda L. Hosley, assistant professor, M.S.N., Kentucky, 1990
Patricia B. Howard, assistant professor, Ph.D., Kentucky, 1992
Pamela S. Kidd, associate professor, Ph.D., Arizona, 1989
Marilyn G. King, associate professor, D.N.Sc., Boston, 1987
Gretchen LaGodna, professor, Ph.D., Kentucky, 1975
Gwendolen Lee, associate professor, Ed.D., Tennessee-Memphis, 1973
Dorothy Luther, associate professor emeritus, Ph.D., Texas-Austin, 1986
Julianne Ossege, assistant professor, Ph.D., South Carolina, 1993
Ann Peden, associate professor, D.S.N., Alabama-Birmingham, 1991
Mary Alice Pratt, associate professor emeritus, M.Ed., Columbia, 1970
Carol Riker, associate professor, M.S.N., Kentucky, 1974
Kay Robinson, associate professor, M.S.N., Kentucky, 1975
Barbara Sachs, professor, Ph.D., Wayne State, 1981
Kathryn Sallee, associate professor, M.N., Emory, 1971
Donna E. Scheideberg, assistant professor, M.P.H., North Carolina, 1983; M.A., Central Michigan, 1984; Ph.D., Michigan State, 1995
Julie Sebastian, associate professor, M.S.N., Kentucky, 1977; Ph.D., Kentucky, 1994
Sharon L. Sheahan, associate professor, Ph.D., Kentucky, 1990
Marcia K. Stanhope, professor, D.Sc.N., Alabama-Birmingham, 1981
Ruth R. Staten, assistant professor, M.S.N., Kentucky, 1981
Renate H. Sward, instructor, M.S.N., Kentucky, 1978; M.S., Utah, 1978
Kathleen D. Wagner, assistant professor, M.S.N., Kentucky, 1987
Mary K. Walker, associate professor, Ph.D., Illinois, 1980
Sherry Warden, associate professor, Ph.D., Kentucky, 1990
J. Darlene Welsh, instructor, M.S.N., Kentucky, 1989
Jo Ann Wever, associate professor, M.S.N., Kentucky, 1976
Mary Gail Wilder,* associate professor, D.N.S., Indiana, 1987
Carolyn A. Williams, professor, Ph.D., North Carolina-Chapel Hill, 1969
John F. Wilson,* associate professor, Ph.D., Michigan, 1977
Margaret Wimmer, associate professor, M.S., Maryland, 1980
Louise Zegeer, professor emeritus, M.S.N., Case Western Reserve, 1959

* joint appointment

## COLLEGE OF PHARMACY

Jordan L. Cohen, dean

Robert J. Abell,** assistant professor, B.S., Kentucky, 1974
Ann B. Amerson, professor, Pharm.D., Kentucky, 1971
James T. Arnold,** instructor, B.S., Kentucky, 1958
Paul Ashton,*** assistant research professor, Ph.D., Wales, 1987
Shewan M. Aziz, assistant research professor, Ph.D., Kentucky, 1992
Mavis T. Barnes,** instructor, B.S., Samford, 1978
Jerry Barnett,** instructor, B.S., Kentucky, 1985
Joan B. Barnett, assistant clinical professor, Pharm.D., Tennessee, 1990
Gregory J. Bausch,** instructor, B.S., Kentucky, 1976
Robert A. Blouin, professor, Pharm.D., Kentucky, 1978
Charles B. Boggs, assistant professor, B.S., Kentucky, 1992
Jan A. Brandenburg,* instructor, B.S., Kentucky, 1985
Barbara F. Brandt, assistant professor, Ph.D., Illinois, 1987
Paul M. Bummer, assistant professor, Ph.D., Wisconsin, 1987
Lisa A. Cassis, associate professor, Ph.D., West Virginia, 1984

Mary H. Chandler, associate professor, Pharm.D., Kentucky, 1985
Eric H. Christianson,*** associate professor, Ph.D., Southern California, 1976
Thomas R. Clarkson,* assistant professor, B.S., Kentucky, 1960
G. Dennis Clifton, associate professor, Pharm.D., Kentucky, 1984
R David Cobb, associate professor, Pharm.D., Kentucky, 1973
Jordan L. Cohen, professor, Ph.D., Wisconsin, 1969
Peter A. Crooks, professor, Ph.D., Manchester, England, 1970
Patrick P. DeLuca, professor, Ph.D., Temple, 1962
George R. Dickens, instructor, Pharm.D., Kentucky, 1990
George A. Digenis, professor, Ph.D., Wisconsin, 1964
Lewis W. Dittert, professor, Ph.D., Wisconsin, 1961
Richard M. Doughty, associate professor emeritus, M.S., Pittsburgh, 1953
Michael A. Doukas,*** associate professor, M.D., Maryland, 1976
Jeffrey M. Durthaler, assistant adjunct professor, M.S., Ohio, 1991
Linda P. Dwoskin, associate professor, Ph.D., Minnesota, 1983
C. Mark Ensor, assistant research professor, Ph.D., Kentucky, 1990
Joseph L. Fink III, professor, J.D., Georgetown, 1973
Thomas S. Foster, professor, Pharm.D., Kentucky, 1973
C. Gary Gairola, research professor, Ph.D., Illinois, 1969
Teresa C. German, assistant clinical professor, Pharm.D., Nebraska, 1982
Michael P. Gosland, assistant professor, Pharm.D., University of the Pacific, 1987
Dwaine K. Green, assistant adjunct professor, B.S., Kentucky, 1971
Frances H. Grogan,** instructor, B.S., Samford, 1978
Charles J. Gross,** clinical instructor, B.S., Kentucky, 1969
Steven A. Haist,*** associate professor, M.D., Kentucky, 1981
Boyd E. Haley, professor, Ph.D., Washington State, 1971
Mary L. Harper, assistant professor, Pharm.D., Purdue, 1987
Jimmi C. Hatton, associate professor, Pharm.D., Kentucky, 1984
Timothy D. Holbrook,* instructor, B.S., Kentucky, 1986
Tom Houchens,** instructor, B.S., Samford, 1972
Adbulghani A. Houdi, assistant research professor, Ph.D., Manchester, England, 1986
Georgette Howard, assistant professor, Ph.D., Louisville, 1986
Max L. Hunt, assistant clinical professor, M.S., Ohio State, 1971
Anwar A. Hussain, professor, Ph.D., Wisconsin, 1965
Clifford E. Hynniman, associate professor, M.S., Maryland, 1967
Myron K. Jacobson, professor, Ph.D., Kansas, 1969
Michael J. Jay, professor, Ph.D., Kentucky, 1980
Susan M. Jay, * assistant professor, B.S., SUNY at Buffalo, 1977
Clayton Jones,** instructor, B.S., Kentucky, 1982
Melinda C. Joyce,** instructor, Pharm.D., Kentucky, 1983
Pankaja Kadaba,* research professor, Ph.D., India, 1954
Milton J. Kornet, associate professor, Ph.D., Illinois, 1962
Robert J. Kuhn, associate professor, Pharm.D., Texas at Austin, 1984
Charles T. Lesshafft, Jr., professor emeritus, Ph.D., Purdue, 1955
Cindy Lewis,** instructor, B.S., Kentucky, 1987
Melvin E. Liter, associate adjunct professor, Pharm.D., University of the Pacific, 1984
Robert A. Littrell, assistant clinical professor, Pharm.D., Kentucky, 1988
Robert A. Lodder, associate professor, Ph.D., Indiana, 1988
William C. Lubawy, professor, Ph.D., Ohio State, 1972
Mark M. Luckens, associate professor emeritus, Ph.D., Connecticut, 1963
Charles F. Mactutus, associate research professor, Ph.D., Kent State, 1979
Barbara L. Magnuson, assistant adjunct professor, Pharm.D., Kentucky, 1990
Patrick J. McNamara, professor, Ph.D., New York, 1979
Rahul C. Mehta, assistant research professor, Ph.D., West Virginia, 1988
Richard A. Neill,*** associate professor, M.D., Kentucky, 1986
Darrel O. Nerstad, assistant clinical professor, M.S., Pepperdine, 1979
Robert S. Oakley,* assistant professor, M.S., Florida, 1982
Karl A. T. O'Dell,** instructor, B.S., Cincinnati, 1987
Jack W. Olson, associate professor, Ph.D., California, 1977
Chester L. Parker,* associate professor, Pharm.D., Kentucky, 1978
Paul F. Parker, professor emeritus, D.Sc. (Hon), PCP&S, 1977
Mary W. Piascik, assistant professor, Ph.D., Ohio State, 1978
John J. Piecoro, Jr., professor, Pharm.D., Kentucky, 1978
Todd D. Porter, assistant professor, Ph.D., Illinois, 1981
Jan S. Pyrek, associate professor, Ph.D., Poland, 1971
Thomas T. Ranz, assistant professor, M.P.A., Kentucky, 1993
Robert P. Rapp, professor, Pharm.D., Kentucky, 1978
Kenneth E. Record, associate professor, Pharm.D., Kentucky, 1978
Kimberly B. Roth, assistant adjunct professor, M.S., Ohio, 1989
Douglas J. Scheckelhoff, clinical assistant professor, M.S., Ohio, 1985
Mark E. Schneiderhan, assistant professor, Pharm.D., Kentucky, 1992
Michael C. Shannon, professor, Ph.D., Wisconsin, 1976
Harry A. Smith, professor emeritus, Ph.D., Purdue, 1959
Edward E. Soltis, associate professor, Ph.D., Florida, 1984
Janice F. Sunahara, assistant clinical professor, Pharm.D., Tennessee, 1989
Joseph V. Swintosky,* professor, dean emeritus, Ph.D., Wisconsin, 1948
Hsin-Hsiung Tai, professor, Ph.D., Wisconsin, 1970
John M. Tiggelaar,* assistant professor, Pharm.D., Kentucky, 1980
David S. Watt,*** professor, Ph.D., Harvard, 1972
Peter J. Wedlund, associate professor, Ph.D., Washington, 1981
Daniel P. Wermeling, associate research professor, Pharm.D., Kentucky, 1983
H. Jean C. Wiese,*** associate professor, Ph.D., North Carolina, 1971
Robert A. Yokel, professor, Ph.D., Minnesota, 1973

*part-time
**field appointment
***joint appointment

## COLLEGE OF SOCIAL WORK

S. Zafar Hasan, dean

Paul D. Acra,* assistant professor, M.S.W., Kentucky, 1972
John R. Ballantine, associate professor, M.S.W., Tulane, 1966
Anthony J. Barone,* assistant professor, M.S.W., Ohio State, 1971
Joanne I. Bell, associate professor emeritus, M.S.W., Pennsylvania, 1954
Robert L. Berger,* professor, M.S.W., Ohio State, 1965
Richard K. Brautigam, associate professor emeritus, Ph.D., Wisconsin, 1971
Lauretta F. Byars, associate professor, M.S.W., Kentucky, 1972; Ed.D., Kentucky, 1982
Mary B. Carney,* assistant professor, Ph.D., Illinois, 1993
Felix O. Chima, assistant professor, Ph.D., Clark, 1992
James J. Clark, assistant professor, M.S.W., Kentucky, 1983
Lucky Jones Collins,* assistant professor, M.S.W., Virginia, 1972
Ronda S. Connaway, professor emeritus, D.S.W., Washington University, 1964
Surjit Singh Dhooper, associate professor, Ph.D., Case Western Reserve, 1982
Patricia A. Dolan,* associate professor, M.S.W., Ohio State, 1970
Linore M. Dudik,* chief social worker, M.S.S.W., Kent School, 1976
Willie L. Elliott,* associate professor, M.S.W., Kentucky, 1973; D. Min., Ashland Theological Seminary, 1989
Anne B. Erwin,* assistant professor, M.S.W., Kentucky, 1973; J.D., Chase School of Law, 1981
Elizabeth H. Farley,* assistant professor, Ed.D., Kentucky, 1977; M.S.W., Kentucky, 1987
Janet P. Ford, assistant professor, Ph.D., Case Western Reserve, 1986
Stephen R. Fox,* assistant professor, M.S.W., Kentucky, 1973
Martha E. Gentry, associate professor emeritus, Ph.D., Washington, 1974
Patricia E. Griffin,** assistant professor, Ph.D., Kentucky, 1985
Edwin H. Hackney,* assistant professor, M.S.W., Kentucky 1987
S. Zafar Hasan, professor, D.S.W., Columbia, 1958
Chester A. Holmquist, associate professor emeritus, M.S., Ohio State, 1947
Paul F. Isaacs,* assistant professor, J.D., Kentucky, 1969
Lenora Isenhour,* assistant professor, M.S.W., Kentucky, 1978
Kim A. Jones,* assistant professor, Ph.D., Smith, 1992
Elizabeth A. Kirlin, professor emeritus, Ed.D., Kentucky, 1974
Robert L. Krause,** assistant professor, M.S.W., Maryland, 1970
T. Patrick Lampton,* assistant professor, M.S.S.W., Louisville, 1968
John W. Landon, professor, M.S.W., Indiana, 1966; Ph.D., Ball State, 1972
Florence M. Lankster,* assistant professor, M.S.W., Kentucky, 1978
Carl G. Leukefeld,*** professor, D.S.W., Catholic University of America, 1975
John J. Manley,* assistant professor, M.S.W., Kentucky, 1981
Ted A. Marshall,* associate professor, M.S.W., Kentucky, 1973
Tony Mazzaro,* associate professor, M.S.W., Kentucky, 1980
Karen L. Middendorf,* assistant professor, M.A., Morehead State, 1974
Maryrhea M. Morelock, associate professor emeritus, M.S.S.W., Louisville, 1964
Kenneth E. Oliver,* assistant professor, M.S.W., Kentucky, 1973
Melanie D. Otis,* assistant professor, M.S.W., Kentucky, 1989
Gary W. Paquin, assistant professor, Ph.D., California-Berkeley, 1989
Darrell D. Payne,* assistant professor, M.S.S.W., Kent School, 1982; J.D., Chase School, 1988
Bennie C. Robinson,* associate professor, Ph.D., Denver, 1989
Jane K. Roe,* assistant professor, M.S.W., Tulane, 1960
Elizabeth L. Rompf, assistant professor, M.S.W., Kentucky, 1977; Ph.D., Kentucky, 1989
David D. Royse, associate professor, Ph.D., Ohio State, 1980
David R. Rudy,* professor, Ph.D., Syracuse, 1977
John M. Seelig,* associate professor, M.S.W., Ohio, 1976; J.D., Capital University, 1983
Judith A. Stafford,* assistant professor, Ph.D., Ohio State, 1989
Teresa Wilkes Stivers,* assistant professor, M.S.W., Kentucky, 1982
Nathan R. Sullivan, associate professor, M.S.W., Kentucky, 1972
Richard D. Sutphen, assistant professor, Ph.D., Georgia, 1993
Marie T. Tychonievich,* assistant professor, M.S.W., Kentucky, 1973
Lane J. Veltkamp,*** professor, M.S.W., Michigan State, 1964
Barbara H. Waldner,* assistant professor, M.S.W., Kentucky, 1975
Robert Walker,* assistant professor, M.S.W., Kentucky, 1979
Myra B. Weir,* assistant professor, M.S.W., Kentucky, 1983
David R. Wekstein,*** professor, Ph.D., Rochester, 1962
Kennard W. Wellons, professor, D.S.W., California-Berkeley, 1973
Richard J. Welsh,*** professor, M.S.W., Iowa, 1966

Larry W. Whorley,* assistant professor, D.S.W., Maryland, 1978
Vernon R. Wiehe, professor, Ph.D., St. Louis, 1972
Constance P. Wilson, professor, M.S.S.S., Boston, 1951
Barbara L. Worful,** assistant professor, M.S.S.W., Louisville, 1963

*part-time
**adjunct faculty
***UK College of Medicine

## THE GRADUATE SCHOOL

Daniel R. Reedy, dean

### JAMES W. MARTIN SCHOOL OF PUBLIC POLICY AND ADMINISTRATION

Eugenia F. Toma, director

Philip K. Berger,* professor, Ph.D., Texas Christian, 1969
Glenn C. Blomquist, professor, Ph.D., Chicago, 1977
David Freshwater,* associate professor, Ph.D., Michigan State, 1977
Richard W. Furst,* professor, D.B.A., Washington, 1968
Merlin M. Hackbart,* professor, Ph.D., Kansas State, 1968
Edward T. Jennings, Jr.,* associate professor, Ph.D., Washington, 1977
Sheila Murray, assistant professor, Ph.D. candidate, Maryland, 1995
Robert C. Rodgers, associate professor, Ph.D., Michigan State, 1981
William J. Stober,* professor, Ph.D., Duke, 1965
Jeffrey Talbert, assistant professor, Ph.D. candidate, Texas A&M, 1995
Eugenia F. Toma,* professor, Ph.D., Virginia Polytechnic Institute, 1977

*joint appointment

### NUTRITIONAL SCIENCES

Linda H. Chen, director

Kwaku Addo,* assistant professor, Ph.D., Washington State, 1990
James W. Anderson,* professor, M.D., Northwestern, 1958
M. Margaret Barth,* assistant professor, Ph.D., Illinois, 1991
Gilbert A. Boissonneault,* associate professor, Ph.D., Illinois, 1982
James A. Boling,* professor, Ph.D., Wisconsin, 1967
Maria G. Boosalis,* assistant professor, Ph.D., Minnesota, 1984
Geza G. Bruckner,* professor, Ph.D., Kentucky, 1979
Ronald Bulbulian,* associate professor, Ph.D., Southern California, 1981
Austin H. Cantor,* associate professor, Ph.D., Cornell, 1974
Linda H. Chen,* professor, Ph.D., Louisville, 1964
Ching K. Chow,* professor, Ph.D., Illinois, 1969
James F. Drummond,* professor, D.D.S., St. Louis, 1963; Ph.D., St. Louis, 1970
Hazel W. Forsythe,* assistant professor, Ph.D., Oklahoma State, 1987
Vincent S. Gallicchio,* professor, Ph.D., New York, 1976
Howard P. Glauert,* associate professor, Ph.D., Michigan State, 1982
David L. Harmon,* associate professor, Ph.D., Nebraska, 1983
Roger W. Hemken,* professor, Ph.D., Cornell, 1957
Bernhard Hennig,* associate professor, Ph.D., Iowa State, 1982
David F. Hildebrand,* associate professor, Ph.D., Illinois, 1982
Laurie L. Humphries,* professor, M.D., Emory, 1973
Elaine L. Jacobson,* professor, Ph.D., Kansas State, 1971
Bryan M. Johnstone,* assistant professor, Ph.D., Arizona, 1986
Edward J. Kasarskis, Jr.,* professor, M.D., Wisconsin, 1974
Mark S. Kindy,* assistant professor, Ph.D., Boston, 1987
Craig J. McClain,* professor, M.D., Tennessee, 1972
L. Preston Mercer,* professor, Ph.D., Louisiana State, 1971
George E. Mitchell,* professor, Ph.D., Illinois, 1956
Chawla Rajender,* professor, Ph.D., Georgia Institute of Technology, 1969
Larry W. Robertson,* associate professor, Ph.D., Michigan, 1981
Thomas H. Schwarcz,* associate professor, M.D., Ohio State, 1979
Youling L. Xiong,* assistant professor, Ph.D., Washington State, 1989

*joint appointment

### GRADUATE CENTER FOR BIOMEDICAL ENGINEERING

Charles F. Knapp, director

Kimberly Ward Anderson,* associate professor, Ph.D., Carnegie-Mellon, 1986
B. J. Barber,* associate research professor, Ph.D., Kentucky, 1976
David Brown, assistant research professor, Ph.D., Mississippi, 1982
Eugene Bruce, professor, Ph.D., Southern California, 1973
Donald T. Frazier,* professor, Ph.D., Kentucky, 1964
Charles F. Knapp, professor, Ph.D., Notre Dame, 1968
James F. Lafferty, professor emeritus, Ph.D., Michigan, 1967
Stephen Lai-Fook, professor, Ph.D., Washington, 1972
Abhijit Patwardhan, assistant research professor, Ph.D., Kentucky, 1992
David Pienkowski, assistant research professor, Ph.D., Pennsylvania, 1982
David Puleo, assistant research professor, Ph.D., Rennselaer Polytechnic, 1991
David Randall,* professor, Ph.D., Washington, 1972
Keith Rouch,* professor, Ph.D., Marquette, 1978
Val Runge,* professor, M.D., Stanford, 1982
Richard Salcido,* assistant professor, M.D., Mexico, 1985
Robert Shapiro,* associate professor, Ph.D., Illinois at Urbana, 1979
Betty F. Sisken, associate research professor, Ph.D., Kentucky, 1973
Charles Smith,* assistant professor, Ph.D., Tulane, 1979
Stephen Smith,* professor, Ph.D., Tulane, 1965
Janet Walker,* assistant professor, M.D., South Florida, 1981

*joint appointment

### GRADUATE CENTER FOR TOXICOLOGY

Mary Vore, director

M.I.H. Aleem,* professor, Ph.D., Cornell, 1958
David Allen,* professor, Ph.D., North Carolina State, 1968
Wesley J. Birge,* professor, Ph.D., Oregon State, 1955
Robert Blouin,* professor, Ph.D., Kentucky, 1978
Gil Boissonneault,* associate professor, Ph.D., Illinois, 1982
Subbarao Bondada,* professor, Ph.D., University of Bombay, 1976
Rosemarie Booze,* associate professor, Ph.D., Johns Hopkins, 1985
Geza G. Bruckner,* professor, Ph.D., Kentucky, 1979
John Carney,* associate professor, Ph.D., Michigan, 1976
Lisa Cassis,* associate professor, Ph.D., West Virginia, 1984
Rajender Chawla,* professor, Ph.D., Georgia Institute of Technology, 1969
Ching K. Chow,* professor, Ph.D., Illinois, 1959
Donald A. Cohen,* associate professor, Ph.D., Cincinnati, 1979
Peter A. Crooks,* professor, Ph.D., University of Manchester, England, 1970
Douglas Dahlman,* professor, Ph.D., Iowa State, 1965
George Digenis,* professor, Ph.D., Wisconsin, 1964
Linda Dwoskin,* associate professor, Ph.D., Syracuse University, 1983
James W. Flesher,* professor, Ph.D., Loyola, 1958
Gary Gairola,* associate professor, Ph.D., Illinois, 1969
Vincent S. Gallicchio,* professor, Ph.D., New York University, 1976
Howard P. Glauert,* associate professor, Ph.D., Michigan State, 1982
S. Niranjan Goud,* assistant professor, Ph.D., Osmania University, India, 1980
Ramesh Gupta, professor, Ph.D., Roorkee, India, 1972
Bernhard Hennig,* professor, Ph.D., Iowa, 1982
Louis Hersh,* professor, Ph.D., Brandeis, 1967
Darrell Jennings,* associate professor, Ph.D., Kentucky, 1977
Davy Jones, professor, Ph.D., California-Davis, 1982
Alan M. Kaplan,* professor, Ph.D., Purdue, 1969
Edward J. Kasarskis, Jr.,* professor, Ph.D., Wisconsin, 1974
Eun Lee,* associate professor, Ph.D., Kyung Hee Medical School, 1978
Charles Mactutus,* associate professor, Ph.D., Kent State, 1979
Hartmut H. Malluche,* professor, M.D., 1971
Craig McClain,* professor, M.D., Tennessee, 1972
Joseph McGillis,* associate professor, Ph.D., George Washington, 1985
Patrick McNamara,* professor, New York State at Buffalo, 1979
Isabel Mellon,* assistant professor, Ph.D., Illinois, 1984
Dan Noonan,* associate professor, Ph.D., Texas, 1980
William O'Connor,* associate professor, M.D., National University of Ireland, 1972
Peter R. Oeltgen,* associate professor, Ph.D., Loyola, 1973
Creed Pettigrew,* associate professor, M.D., Texas, 1980
Koochanda Poonacha,* professor, Ph.D., Wisconsin, 1972
Todd Porter,* assistant professor, Ph.D., Illinois, 1981
Larry W. Robertson, associate professor, Michigan, 1981
George Rodgers,* adjunct associate professor, M.D.; Ph.D., Yale, 1964
Gerald Rosenthal,* professor, Ph.D., Duke, 1966
Steven I. Shedlofsky,* associate professor, M.D., Michigan, 1974
John Slevin,* professor, Ph.D., Maryland, 1962
Roy Smith,* associate professor, Ph.D., Alberta, 1974
Daret St. Clair, assistant professor, Ph.D., Iowa, 1984
Thomas Tobin,* professor, D.V.M., Dublin, 1964; Ph.D., Toronto, 1969
Muneyasu Urano,* professor, M.D., Kyoto Prefectural University, Japan, 1962; Ph.D., Kyoto Prefectural University, Japan, 1968
Thomas Vanaman,* professor, Ph.D., Duke, 1968
Mary Vore, professor, Ph.D., Vanderbilt, 1972
Peter Wedlund,* associate professor, Ph.D., Washington, 1981
Robert A. Yokel,* professor, Ph.D., Minnesota, 1973
Stephen Zimmer,* associate professor, Ph.D., Colorado, 1973

*joint appointment

### PATTERSON SCHOOL OF DIPLOMACY AND INTERNATIONAL COMMERCE

John D. Stempel, director

Associate faculty:
James C. Albisetti, Department of History
Kurt Ramon Anschel, Department of Agricultural Economics
Raymond F. Betts, Department of History
Douglas A. Boyd, College of Communications

Stanley Brunn, Department of Geography
Robert E. Burnett, School of Diplomacy
Francie Chassen-Lopez, Department of History
Robert Dahlstrom, Department of Marketing
Charles Davis, Department of Political Science
Vincent Davis, School of Diplomacy
James Donnelly, Department of Marketing
Richard Gift, Department of Economics
A. L. Goldman, College of Law
Charles Haywood, Department of Finance
George C. Herring, Department of History
Charles Hultman, Department of Economics
Craig Infanger, Department of Agricultural Economics
Cynthia Irwin, Department of Political Science
P. P. Karan, Department of Geography
Stuart J. Kaufman, Department of Political Science
Joachim M. Knuf, Department of Communications
Ronald E. Langley, Department of Political Science
Thomas Leinbach, Department of Geography
Karen Mingst, Department of Political Science
Donald Mullineaux, Department of Finance
Robert Olson, Department of History
Michael Reed, Department of Agricultural Economics
Daniel Reedy, The Graduate School
Susan Roberts, Department of Geography
John Rogers, College of Law
Ramona Rush, Department of Communications
Thomas Stipanowich, College of Law
Louis Swanson, Department of Sociology
John VanWilligen, Department of Anthropology
Steve Vasek, College of Law
Sharmila Vishwasro, Department of Economics
John F. Watkins, Department of Geography
Michael Webb, Department of Economics

## HONORS PROGRAM

Christine Havice, director

James C. Albisetti,* professor, Ph.D., Yale, 1976
William R. Campbell,* associate professor, Ph.D., Oregon, 1967
James P. Chapman,* professor (adjunct), Ph.D., Indiana, 1972
Alice T. Christ,* assistant professor, Ph.D., Chicago, 1992
Jonathan Glixon,* associate professor, Ph.D., Princeton, 1979
John L. Greenway,* associate professor, Ph.D., Wisconsin, 1969
Christine Havice,* associate professor, Ph.D., Penn State, 1978
Pem Kremer,* assistant professor, Ph.D., Kentucky, 1973
Brandon C. Look, assistant professor, Ph.D., Chicago, 1995
David M. Olster,* associate professor, Ph.D., Chicago, 1985
Terence O. Tunberg,* associate professor, Ph.D., Toronto, 1986
Jane Gentry Vance,* associate professor, Ph.D., North Carolina, 1975

*joint appointment

## UNIVERSITY OF KENTUCKY LIBRARIES

Paul A. Willis, director

James Birchfield, librarian I, M.A., Florida State, 1969; Ph.D., Florida State, 1976; M.S.L.S., Florida State, 1977
Terry Birdwhistell, librarian I, M.A., Kentucky, 1974; M.A.L.S., Kentucky, 1978
Katherine J. Black, librarian II, M.S.L.S., Kentucky, 1978
Lewis Bowling, librarian II, M. Mus., Northern Colorado, 1974; D.A., Northern Colorado, 1982; M.A.L.S., Iowa, 1988
Judith Brown, librarian II, M.L.S., Kentucky, 1971
Gillian Buckland, librarian III, M.S.L.S., Kentucky, 1989
Sue Burch, librarian II, M.S.L.S., Kentucky, 1982
James Burgett, librarian IV, Ph.D., Minnesota, 1988; M.A., Kentucky, 1976; M.L.S., Kentucky, 1992
Teresa Burgett, librarian II, M.S.L.S., Kentucky, 1978
Carla Cantagallo, librarian III, M.S.L.S., Kentucky, 1988
Bradley Carrington, librarian II, M.L.S., Emory, 1985
Herbert E. Cihak, librarian II, J.D., Nebraska, 1983; M.A., Brigham Young, 1975; M.L.S., Brigham Young, 1984
William Cooper, Jr., librarian II, M.A.T., Indiana, 1957
Bonnie J. Cox, librarian II, M.A., Kentucky, 1969; M.S.L.S., Kentucky, 1986
Shawn Esposito, librarian III, J.D., Louisville, 1981; M.S., Florida State, 1991
Bradley Grissom, librarian II, M.S.L.S., Kentucky, 1976
Barbara Hale, librarian II, M.S., Kentucky, 1982
Gracie Hale, librarian IV, M.S.L.S., Kentucky, 1990
Faith Harders, librarian I, M.A., Chicago, 1970; M.A.L.S., Chicago, 1974
Deborah Hatfield, librarian IV, M.S.L.S., Kentucky, 1983
Thomas Hecker, librarian II, M.L.S., Pittsburgh, 1982
Paula Hickner, librarian III, M.S.L.S., Indiana, 1986; M.M., Indiana, 1987
Gordon Hogg, librarian II, M.S.L.S., Catholic University, 1983
Margaret Johnson, librarian II, M.S.L.S., University of Washington, 1974; M.B.A., Lincoln University, 1981
Cheryl Jones, librarian I, M.S.L.S., Kentucky, 1971
Reinette Jones, librarian II, M.S.L.S., Kentucky, 1988
Roxanna Jones, librarian II, M.S.L.S., Kentucky, 1978
Tari Keller, librarian I, M.Ed., Miami, 1975; M.L.S., Indiana, 1977
Gail Kennedy, librarian I, M.S.L.S., Kentucky, 1974
Michael Lach, Jr., librarian I, M.S.L.S., Simmons, 1973
Shawn D. Livingston, librarian IV, M.S.L.S., Kentucky, 1993
William Marshall, Jr., librarian I, M.A., Kent, 1972; M.L.S., Kent, 1973
Sandra McAninch, librarian I, M.S.L.S., North Carolina, 1973
Claire McCann, librarian I, M.S.L.S., Kentucky, 1963
Wanda McClure, librarian IV, M.S.L.S., Kentucky, 1994
Robert McGill-Aken, librarian II, M.A., Kentucky, 1979; M.S.L.S., Kentucky, 1983
Mary McLaren, librarian II, M.L.S., Pittsburgh, 1969
Lillian Mesner, librarian II, M.L.S., Maryland, 1970
Joseph Miller, librarian IV, M.S.L.S., Kentucky, 1992
Mary Molinaro, librarian III, M.L.S., Ball State, 1981
Ling-Yuh W. Pattie, librarian II, M.L.S., Kentucky, 1968
Antoinette Powell, librarian I, M.A.L.S., Kentucky, 1973
Russell Powell, librarian I, M.L.S., Pittsburgh, 1966
Michael Adil Razeeq, librarian II, M.S.L.S., Case Western, 1976
Kevin B. Reid, librarian IV, M.A., Purdue, 1986; M.L.S., Kentucky, 1993
Kandace Rogers, librarian IV, M.S.L.S., Kentucky, 1989
Rebecca Ryder, librarian IV, M.S.L.S., Kentucky, 1992
Judy Sackett, librarian I, M.S.L.S., Denver, 1969
Stephen Savage, librarian II, M.M., Kentucky, 1982; M.S.L.S., Kentucky, 1988
Katherine Seago, librarian II, M.A., Kentucky, 1985
Ebba Sexton, librarian II, M.S.L.S., Kentucky, 1978
Margaret Shaw, librarian II, M.L.S., Kentucky, 1979
Charles A. Spears, librarian IV, B.G.S., Kentucky, 1974
Mary Vass, librarian II, M.A., Virginia Polytechnic Institute, 1979; M.S.L.S., North Carolina-Chapel Hill, 1984
Sarah Vaughn, librarian III, M.S.L.S., Kentucky 1982
Veronica Walker, librarian IV, M.S.L.S., Kentucky, 1994
Geraldine Webb, librarian II, M.S.L.S., Kentucky, 1976
Mary Welch, librarian I, M.S.L.S., Kentucky, 1970
Laura Whayne, librarian III, M.L.S., Denver, 1978; M.A., Kansas, 1989
Paul Willis, librarian I, M.L.S., Maryland, 1966, J.D., Kentucky, 1969
Patricia Wilson, librarian III, M.S.L.S., Kentucky, 1988
Judith Wiza, librarian II, M.S.L.S., Wisconsin-Madison, 1977; M.A., Wisconsin-Madison, 1978
Olga D. Wood, librarian IV, M.S.L.S., Kentucky, 1993

### MEDICAL CENTER LIBRARY

Janet Stith, director

Stephanie Allen, librarian I, M.S.L.S., Kentucky, 1975
Bernadette Baldini, librarian I, M.S.L.S., Kentucky, 1974
Karl-Heinz Boewe, librarian I, Ph.D., Rice, 1969; M.A., Missouri, 1974
Lynne Bowman, librarian I, M.S.L.S., Kentucky, 1978
Rick Brewer, librarian IV, M.S.L.S., Kentucky, 1994
Jane Bryant, librarian III, M.S.L.S., Kentucky, 1984
Cindy Cline, librarian II, M.S.L.S., Kentucky, 1987
Beverly Hilton, librarian I, M.S.L.S., Maryland, 1975
Mark Ingram, librarian II, M.S.L.S., Kentucky, 1979
Janet Stith, librarian I, M.S.L.S., Kentucky, 1971
Edwinal Theirl, librarian II, M.S.L.S., Kentucky, 1985
Deborah Ward, librarian III, M.S.L.S., Kentucky, 1979

# ADMINISTRATION

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Martin Welenken, Louisville
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# UNIVERSITY CALENDAR

Students should check the *Schedule of Classes* for any calendar changes that may have been approved after the publication of this Bulletin.

## 1995 Fall Semester

### Application for Admission

February 1 – Wednesday - Deadline for International applications to be submitted to The Graduate School for the 1995 Fall Semester

February 15 – Wednesday - Priority deadline for Freshman applicants: Applicants for the 1995 Fall Semester by this date who meet automatic admission criteria will be guaranteed general admission; applicants after this date whether meeting automatic admission or delayed admission criteria will be considered on a space-available basis only.

February 15 – Wednesday - Deadline for submission of all application materials, College of Medicine, for Fall 1995

March 1 – Wednesday - Deadline for submission of application and all required documents to the Office of Admissions for community college transfer applicants planning to attend April Advising Conference (including registration for classes) for 1995 Fall Semester

April 15 – Saturday - Deadline for applying with college deans for reinstatement after a second academic suspension for the 1995 Fall Semester

May 1 – Monday - Deadline for undergraduate International applicants to submit 1995 Fall Semester application

June 1 – Thursday - Deadline for submission of application and all required documents to the Office of Admissions for undergraduate applicants planning to attend Summer Advising Conferences (including registration for fall classes)

June 15 – Thursday - Earliest date to submit application for regular and Early Decision Program admission, College of Medicine, for Fall 1996

July 21 – Friday - Deadline for applying for admission to a program in The Graduate School for the 1995 Fall Semester. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.

August 1 – Tuesday - Final deadline for submission of application and all required documents to the Office of Admissions for undergraduate admission for the 1995 Fall Semester. Non-degree students who enroll through the Evening/Weekend Program registration before the beginning of classes for eight (8) hours or less are exempt from this deadline.

August 1 – Tuesday - Deadline for application for Early Decision Program, College of Medicine, for Fall 1996

August 9 – Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1995 Fall Semester in order to register before the beginning of classes and avoid $40 late fee

October 15 – Sunday - Deadline for submission of application and all required documents to the Office of Admissions for undergraduate applicants planning to attend November Advising Conference (including registration for spring classes)

October 31 – Tuesday - Deadline for International applications to be submitted to The Graduate School for 1996 Summer School

November 1 – Wednesday - Deadline for completed AMCAS application, College of Medicine, for Fall 1996

December 1 – Friday - Deadline for submission of application and receipt of all materials for admission, readmission or transfer to the College of Law for the 1996 Spring Semester

December 4 – Monday - Deadline for applying for admission to a program in The Graduate School for the 1996 Spring Semester. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.

December 13 – Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Spring Semester in order to register before the beginning of classes and avoid $40 late fee

### Registration

June 19-July 28 – Summer Advising Conferences for new freshmen, Community College transfers, advanced standing (transfer) students, auditors, nondegree and readmitted students enrolling for the 1995 Fall Semester

August 15-21 – Tuesday through Monday - Registration for new graduate students

August 15-21 – Tuesday through Monday - Fall registration for students who entered the University in either the 1995 Four-Week Intersession or Eight-Week Summer Session

August 17-19 – Thursday through Saturday - Registration for Evening/Weekend students

August 18 – Friday - Registration for International Students who have been cleared for admission but did not priority register

August 21 – Monday - Registration for new students who have been cleared for admission but did not priority register

August 23-29 – Wednesday through Tuesday - Late registration for returning students who did not priority register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.

September 13 – Wednesday - Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office

October 30-November 17 – Monday through Friday - Priority registration for the 1996 Spring Semester

November 17 – Friday - 1996 Spring Semester Advising Conference for new and readmitted undergraduate students

### Add/Drop/Withdrawal

July 29-August 12* – Saturday through Saturday - Add/Drop for priority registered students

August 16-19 – Wednesday through Saturday - Add/Drop for priority registered students

August 22 – Tuesday - First day of opening-of-term add/drop for priority registered students

August 22 – Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 29 – Tuesday - Last day to enter an organized class for the 1995 Fall Semester

August 29 – Tuesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 13 – Wednesday - Last day to drop a course without it appearing on the student's transcript

October 20 – Friday - Last day to withdraw from a course

October 20 – Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."

November 30-December 30* – Thursday through Saturday - Add/Drop for priority registered students for the 1996 Spring semester

### Fee Payment

August 2 – Wednesday - Last day priority registered students may pay $50 to confirm their 1995 Fall Semester registration

August 22 – Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 29 – Tuesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 6 – Wednesday - Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card

September 15 – Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

October 20 – Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."

December 6 – Wednesday - Last day priority registered students may pay $50 to confirm their 1996 Spring Semester registration

### Degrees and Graduation

September 21 – Thursday - Last day for filing an application for a December degree in college dean's office

November 2 – Thursday - Last day for doctoral candidates for a December degree to submit a Notification of Intent to schedule a final examination in The Graduate School

November 16—Thursday - Last day for candidates for a December degree to schedule a final examination in The Graduate School
November 30 — Thursday - Last day for candidates for a December graduate degree to sit for a final examination
December 15—Friday - Last day for candidates for a December degree to submit a thesis/dissertation to The Graduate School

### Other Important Dates - Beginning and End of Semester and Academic Holidays

August 2 — Wednesday - Last day for priority registered students in the Employee Educational Program to submit EEP form to their personnel office to confirm 1995 Fall Semester registration and tuition defrayal
August 19-21 — Saturday through Monday - Fall Orientation for all new undergraduate students
August 21-25 — Monday through Friday - Approved time period for students to change academic majors
August 23 — Wednesday - Class work begins
August 29—Tuesday - Last day for students in the Employee Educational Program who registered in August to submit EEP form to their personnel office for tuition defrayal for the 1995 Fall Semester
September 4 — Monday - Labor Day - Academic Holiday
October 6 — Friday - Deadline for submission of application and all required documents to the Office of the Registrar for change of residency status for 1995 Fall Semester
October 16 — Monday - Midterm of 1995 Fall Semester
October 17-30 — Tuesday through Monday - Approved time period for students to change academic majors
November 23-25 — Thursday through Saturday - Thanksgiving Holidays - Academic Holidays
December 8 — Friday - End of class work
December 11-15 — Monday through Friday - Final Examinations
December 15 — Friday - End of 1995 Fall Semester
December 18 — Monday - Final deadline for submission of grades to the Registrar's Office by 4 p.m.

*These dates are subject to change due to continuing development of telephone registration.

## 1996 Spring Semester

### Application for Admission

June 15, 1995 — Thursday - Deadline for International applications to be submitted to The Graduate School for the 1996 Spring Semester
September 1, 1995 — Friday - Deadline for undergraduate International applicants to submit 1996 Spring Semester application
September 15, 1995 — Friday - Deadline for applying with college deans for reinstatement after a second academic suspension for the 1996 Spring Semester
October 15, 1995 — Sunday - Deadline for submission of application and all required documents to the Office of Admissions for undergraduate applicants planning to attend November Advising Conference (including registration for spring classes)
December 1, 1995 — Friday - Final deadline for submission of application and all required documents to the Office of Admissions for undergraduate admission for the 1996 Spring Semester. Non-degree students who enroll through the Evening/Weekend Program registration before the beginning of classes for eight (8) hours or less are exempt from this deadline.
December 4, 1995 — Monday - Deadline for applying for admission to a program in The Graduate School for the 1996 Spring Semester. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.
December 13, 1995 — Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Spring Semester in order to register before the beginning of classes and avoid $40 late fee
February 1 — Thursday - Deadline for International applications to be submitted to The Graduate School for the 1996 Fall Semester
February 15 — Thursday - Deadline for submission of all application materials, College of Medicine, for Fall 1996
March 1 — Friday - Last day for submission of application for admission to the College of Law for 1996 Fall Semester
April 1 — Monday - Preferred deadline for submitting application for admission to the College of Dentistry for Fall 1996
April 5 — Friday - Deadline for applying for admission to a program in The Graduate School for the 1996 Summer Sessions. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.
April 24 — Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Four-Week Intersession in order to register May 6 and avoid $40 late fee

### Registration

January 2-8 — Tuesday through Monday - Registration for new graduate students
January 5 & 6 — Friday and Saturday - Registration for Evening/Weekend students
January 8 — Monday - Registration for new students who have been cleared for admission but did not priority register
January 10-17 — Wednesday through Wednesday - Late registration for returning students who did not priority register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.
January 31 — Wednesday - Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office
March 25-April 12 — Monday through Friday - Priority registration for the 1996 Fall Semester and both 1996 Summer Sessions
April 5 — Friday - 1996 April Advising Conference for Community College transfer students cleared for Fall admission
April 23-May 6* — Tuesday through Monday - Four-Week Intersession registration and add/drop continues for students enrolled in the 1996 Spring Semester
April 23-June 5* — Tuesday through Wednesday - Eight-Week Summer Session registration and add/drop continues for students enrolled in the 1996 Spring Semester

### Add/Drop/Withdrawal

January 3-6* — Wednesday through Saturday - Add/Drop for priority registered students
January 9 — Tuesday - First day of opening-of-term add/drop for priority registered students
January 9 — Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
January 17 — Wednesday - Last day to enter an organized class for the 1996 Spring Semester
January 17 — Wednesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
January 31 — Wednesday - Last day to drop a course without it appearing on the student's transcript
March 8 — Friday - Last day to withdraw from a course
March 8 — Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
April 23-June 15* — Tuesday through Saturday - Add/Drop for priority registered students for Fall 1996

### Fee Payment

January 9 — Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
January 17 — Wednesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
January 24 — Wednesday - Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
February 2 — Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
March 8 — Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."

### Degrees and Graduation

February 8 — Thursday - Last day for filing an application for a May degree in college dean's office
March 21 — Thursday - Last day for doctoral candidates for a May degree to submit a Notification of Intent to schedule a final examination in The Graduate School
April 4 — Thursday - Last day for candidates for a May degree to schedule a final examination in The Graduate School
April 18 — Thursday - Last day for candidates for a May graduate degree to sit for a final examination
April 26 — Friday - Last day for doctoral candidates for a May degree who wish to receive a diploma at Commencement to submit dissertation to The Graduate School
May 3 — Friday - Last day for candidates for a May degree to submit a thesis/dissertation to The Graduate School
May 5 — Sunday - Commencement Day

### Other Important Dates - Beginning and End of Semester and Academic Holidays

December 6, 1995—Wednesday - Last day for priority registered students in the Employee Educational Program to submit EEP form to their personnel office to confirm 1996 Spring Semester registration and tuition defrayal
January 8-12 — Monday through Friday - Approved time period for students to change academic majors
January 10—Wednesday - Class work begins
January 15—Monday - Martin Luther King Birthday - Academic Holiday
January 17 — Wednesday - Last day for students in the Employee Educational Program who registered in January to submit EEP form to their personnel office for tuition defrayal for the 1996 Spring Semester
February 23 — Friday - Deadline for submission of application and all required documents to the Office of the Registrar for change of residency status for 1996 Spring Semester
March 4—Monday - Midterm of 1996 Spring Semester
March 5-25 — Tuesday through Monday - Approved time period for students to change academic majors
March 11-16—Monday through Saturday - Spring Vacation - Academic Holidays
April 26—Friday - End of class work
April 29-May 3—Monday through Friday - Final Examinations
May 3—Friday - End of 1996 Spring Semester
May 6 — Monday - Final deadline for submission of grades to the Registrar's Office by 4 p.m.
May 6-August 17—College of Pharmacy 15-Week Summer Term

*These dates are subject to change due to continuing development of telephone registration.

## 1996 Four-Week Intersession

### Application for Admission

October 31, 1995—Tuesday - Deadline for International applications to be submitted to The Graduate School for 1996 Summer School
April 5—Friday - Deadline for applying for admission to a program in The Graduate School for the 1996 Summer Sessions. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.
April 15—Monday - Deadline for submission of application and all required documents to the Office of Admissions for undergraduate admission for the 1996 Four-Week Intersession
April 24—Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Four-Week Intersession in order to register May 6 and avoid $40 late fee
May 22—Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Eight-Week Summer Session in order to register before the beginning of classes and avoid $40 late fee

### Registration

April 23-May 6*—Tuesday through Monday - Registration and add/drop continues for students enrolled in the 1996 Spring Semester
May 6—Monday - Registration for new students
May 7-10 — Tuesday through Friday - Late registration for returning students who did not priority register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.
May 13—Monday - Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office
May 15-June 5*—Wednesday through Wednesday - Eight-Week registration and add/drop for students who entered the University in the 1996 Four-Week Intersession

### Add/Drop/Withdrawal

May 7—Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
May 10—Friday - Last day to enter an organized class for the 1996 Four-Week Intersession
May 10 — Friday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
May 13—Monday - Last day to drop a course without it appearing on the student's transcript
May 21—Tuesday - Last day to withdraw from a course
May 21—Tuesday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."

### Fee Payment

May 7—Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
May 10 — Friday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
May 20—Monday - Last day to pay registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
May 21—Tuesday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
May 30—Thursday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

### Other Important Dates - Beginning and End of Semester and Academic Holidays

May 6—Monday - Beginning of College of Pharmacy 15-Week Summer Term
May 7—Tuesday - Class work begins
May 10 — Friday - Last day for students in the Employee Educational Program to submit EEP form to their personnel office for tuition defrayal for the 1996 Four-Week Intersession
May 17—Friday - Deadline for submission of application and all required documents to the Office of the Registrar for change of residency status for 1996 Four-Week Intersession
May 20—Monday - Midterm of 1996 Four-Week Intersession
May 27—Monday - Memorial Day - Academic Holiday
June 4—Tuesday - Final Examinations
June 4—Tuesday - End of the 1996 Four-Week Intersession
June 7—Friday - Final deadline for submission of grades to the Registrar's Office by 12 noon

*These dates are subject to change due to continuing development of telephone registration.

## 1996 Eight-Week Summer Session

### Application for Admission

October 31, 1995—Tuesday - Deadline for International applications to be submitted to The Graduate School for 1996 Summer School
February 1—Thursday - Deadline for undergraduate International applicants to submit 1996 Eight-Week Summer Session application
April 5—Friday - Deadline for applying for admission to a program in The Graduate School for the 1996 Summer Sessions. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.
May 15 — Wednesday - Deadline for submission of application and all required documents to the Office of Admissions for undergraduate admission for the 1996 Eight-Week Summer Session. Non-degree students who enroll through the Evening/Weekend Program registration before the beginning of classes are exempt from this deadline.
May 22—Wednesday - Deadline for applying to The Graduate School for readmission, post-baccalaureate status, and visiting student status for the 1996 Eight-Week Summer Session in order to register before the beginning of classes and avoid $40 late fee
June 15 — Saturday - Deadline for International applications to be submitted to The Graduate School for the 1997 Spring Semester
July 19—Friday - Deadline for applying for admission to a program in The Graduate School for the 1996 Fall Semester. Applications for readmission, post-baccalaureate status, and visiting student status will be accepted after the deadline.

### Registration

April 23-June 5*—Tuesday through Wednesday - Registration and add/drop continues for students enrolled in the 1996 Spring Semester
May 15-June 5*—Wednesday through Wednesday - Eight-Week registration and add/drop for students who entered the University in the 1996 Four-Week Intersession
June 4—Tuesday - Registration for Evening/Weekend and new graduate students
June 5—Wednesday - Registration for new students
June 6-10 — Thursday through Monday - Late registration for returning students not priority registered and new applicants cleared late for admission. A $40 late fee is assessed students who register late.
June 17—Monday - Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office
June 17-July 19 — Summer Advising Conferences for new freshmen, Community College transfers, advanced standing (transfer) students,

auditors, nondegree and readmitted students enrolling for the 1996 Fall Semester

### Add/Drop/Withdrawal

June 6 – Thursday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
June 10 – Monday - Last day to enter an organized class for the 1996 Eight-Week Summer Session
June 10 – Monday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
June 17 – Monday - Last day to drop a course without it appearing on the student's transcript
July 10 – Wednesday - Last day to withdraw from a course
July 10 – Wednesday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."

### Fee Payment

June 6 – Thursday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
June 10 – Monday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
June 19 – Wednesday - Last day to pay registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
June 28 – Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
July 10 – Wednesday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
July 31 – Wednesday - Last day priority registered students may pay $50 to confirm their 1996 Fall Semester registration

### Degrees and Graduation

June 21 – Friday - Last day for filing an application for an August degree in college dean's office
June 26 – Wednesday - Last day for doctoral candidates for an August degree to submit a Notification of Intent to schedule a final examination in The Graduate School
July 10 – Wednesday - Last day for candidates for an August degree to schedule a final examination in The Graduate School
July 24 – Wednesday - Last day for candidates for an August graduate degree to sit for a final examination
August 1 – Thursday - Last day for candidates for an August degree to submit a thesis/dissertation to The Graduate School

### Other Important Dates - Beginning and End of Semester and Academic Holidays

June 6 – Thursday - Class work begins
June 10 – Monday - Last day for students in the Employee Educational Program to submit EEP form to their personnel office for tuition defrayal for the 1996 Eight-Week Summer Session
June 27 – Thursday - Deadline for submission of application and all required documents to the Office of the Registrar for change of residency status for 1996 Eight-Week Summer Session
July 4 – Thursday - Independence Day - Academic Holiday
July 5 – Friday - Midterm of 1996 Eight-Week Summer Session
August 1 – Thursday - End of the 1996 Eight-Week Summer Session
August 1 – Thursday - Final examinations
August 5 – Monday - Final deadline for submission of grades to the Registrar's Office by 12 noon
August 17 – Saturday - End of College of Pharmacy 15-Week Summer Term

*These dates are subject to change due to continuing development of telephone registration.

## University of Kentucky College of Law Academic Calendar

### 1995 Fall Semester

August 21 – Monday - Registration
August 22 – Tuesday - Add/Drop
August 22 – Tuesday - Class work begins
August 22 – Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
August 29 – Tuesday - Last day to add a class for the 1995 Fall Semester
August 29 – Tuesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
September 4 – Monday - Labor Day - Academic Holiday
September 6 – Wednesday - Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
September 13 – Wednesday - Last day to change grading option (credit to audit or audit to credit)
September 13 – Wednesday - Last day to drop a course without it appearing on student's transcript
September 15 – Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
September 21 – Thursday - Last day to file an application for a December degree
October 20 – Friday - Last day to withdraw from a course
October 20 – Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
October 31-November 14 – Tuesday through Tuesday - Advance Registration for the 1996 Spring Semester
November 23-25 – Thursday through Saturday - Thanksgiving Holidays - Academic Holidays
December 1 – Friday - Deadline for submission of application and receipt of all materials for admission, readmission, or transfer into 1996 Spring Semester
December 1 – Friday - End of class work
December 2-4 – Saturday through Monday - Law Examination Reading Period
December 5-16 – Tuesday through Saturday - Law Final Examination Period
December 16 – Saturday - End of 1995 Fall Semester

### 1996 Spring Semester

January 8 – Monday - Registration
January 8 – Monday - Class work begins
January 9 – Tuesday - Add/Drop
January 9 – Tuesday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
January 15 – Monday - Martin Luther King Birthday - Academic Holiday
January 17 – Wednesday - Last day to add a class for the 1996 Spring Semester
January 17 – Wednesday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
January 24 – Wednesday - Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
January 31 – Wednesday - Last day to change grading option (credit to audit or audit to credit)
January 31 – Wednesday - Last day to drop a course without it appearing on student's transcript
February 2 – Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
February 8 – Thursday - Last day to file an application for a May degree
March 1 – Friday - Last day for submission of application for admission for 1996 Fall Semester
March 8 – Friday - Last day to withdraw from a course
March 8 – Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
March 11-16 – Monday through Saturday - Spring Vacation - Academic Holidays
March 26-April 9 – Tuesday through Tuesday - Advance Registration for the 1996 Summer Session and 1996 Fall Semester
April 19 – Friday - End of class work
April 20-22 – Saturday through Monday - Law Examination Reading Period
April 23-May 4 – Tuesday through Saturday - Law Final Examination Period
May 4 – Saturday - End of 1996 Spring Semester
May 4 – Saturday - Law Commencement

### 1996 Summer Session

June 5 – Wednesday - Registration
June 6 – Thursday - Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
June 6 – Thursday - Class work begins

June 10—Monday - Last day to add a class for the 1996 Summer Session
June 10—Monday - Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
June 17—Monday - Last day to change grading option (credit to audit or audit to credit)
June 17—Monday - Last day to drop a course without it appearing on student's transcript
June 19—Wednesday - Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
June 21—Friday - Last day to file an application for an August degree
June 28—Friday - Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
July 1—Monday - Deadline for application and submission of all materials for transfer from another law school into 1996 Fall Semester
July 4—Thursday - Independence Day - Academic Holiday
July 5—Friday - Last day to withdraw from a course
July 5—Friday - Last day to withdraw from the University or reduce course load and receive any refund. Students can withdraw or reduce course load after this date only for "urgent non-academic reasons."
July 26—Friday - End of class work
July 27-28—Saturday-Sunday - Law Examination Reading Period
July 29-August 1—Monday through Thursday - Law Final Examination Period
August 1—Thursday - End of 1996 Summer Session

## University of Kentucky
## College of Medicine
## Academic Calendar

### 1995 Fall Semester

July 31—Monday - Third-year students begin classes. Last day for third-year students to withdraw from the College of Medicine for a full refund of fees.
July 31—Monday - First-year students begin classes. Last day for first-year students to withdraw from the College of Medicine for a full refund of fees.
August 7—Monday - Last day for third-year students to withdraw from the College of Medicine and receive an 80 percent refund
August 14—Monday - Last day for first-year students to withdraw from the College of Medicine and receive an 80 percent refund
August 21—Monday - Second-year students register and begin classes. Last day for second-year students to withdraw from the College of Medicine for a full refund of fees.
August 28—Monday - Last day for second-year students to withdraw from the College of Medicine and receive an 80 percent refund
August 28—Monday - Fourth-year students begin rotations. Last day for fourth-year students to withdraw from the College of Medicine for a full refund of fees.
September 4—Monday - First and second-year students - Labor Day Holiday
September 5—Tuesday - Last day for fourth-year students to withdraw from the College of Medicine and receive an 80 percent refund
October 9—Monday - Last day to withdraw from the College of Medicine and receive any refund
November 1—Wednesday - Last day for candidates applying to the College of Medicine to submit their application to AMCAS
November 23—Thursday - Third and fourth-year students - Thanksgiving Holiday
November 23-25—Thursday-Saturday - First and second-year students - Thanksgiving Holidays
December 16—Saturday - Winter Break begins

### 1996 Spring Semester

January 2—Tuesday - All students register and return to class. Last day to withdraw from the College of Medicine and receive a full refund.
January 9—Tuesday - Last day to withdraw from the College of Medicine and receive an 80 percent refund
January 15—Monday - First and second-year students - Martin Luther King Birthday - Academic Holiday
February 15—Thursday - Last day for candidates applying to the College of Medicine to submit their application materials
March 4—Monday - Last day to withdraw from the College of Medicine and receive any refund
May 17—Friday - End of academic year for fourth-year students
May 17—Friday - End of academic year for second-year students
May 18—Saturday - College of Medicine graduation
May 27—Monday - Memorial Day - First Year Student Holiday
July 4—Thursday - Independence Day - First year Student Holiday
July 12—Friday - End of academic year for first-year students
July 12—Friday - End of academic year for third-year students

## University of Kentucky
## College of Dentistry
## Academic Calendar

### 1995 Summer Session

June 2-30—Extended Session
June 2-August 7—Extramural Period

### 1995 Fall Semester

August 7—Monday - Orientation begins for first- and second-year students. Last day for second-year students to withdraw from the College of Dentistry for a full refund of fees.*
August 8—Tuesday - Classes begin for second-year students. Last day for first-year students to withdraw from the College of Dentistry for a full refund of fees.*
August 9—Wednesday - Classes begin for first-year students
August 14—Monday - Orientation begins for third- and fourth-year students. Last day for second-year students to withdraw from the College of Dentistry and receive an 80 percent refund.*
August 15—Tuesday - Last day for third and fourth-year students to withdraw from the College of Dentistry for a full refund of fees.* Last day for first-year students to withdraw from the College of Dentistry and receive an 80 percent refund.* Tuesday - Classes begin for third- and fourth-year students
August 22—Tuesday - Last day for third and fourth year students to withdraw from the College of Dentistry and receive an 80 percent refund.*
August 23—Wednesday - Academic Convocation - No afternoon classes
September 4—Monday - Labor Day - Academic Holiday
October 9—Monday - Last day for second-year students to withdraw from the College of Dentistry and receive any refund (50 percent).*
October 10—Tuesday - Last day for the first-year students to withdraw from the College of Dentistry and receive any refund (50 percent).*
October 17—Tuesday - Last day for the third and fourth-year students to withdraw from the College of Dentistry and receive any refund (50 percent).*
November 23-25—Thursday through Saturday - Thanksgiving Holidays - Academic Holidays
December 20—Wednesday - Winter Vacation begins after last class or clinic

### 1996 Spring Semester

January 8—Monday - Classes resume for all students and last day to withdraw from the College of Dentistry for a full refund of fees.*
January 12—Friday - Last day to withdraw from the College of Dentistry and receive an 80 percent refund.*
January 15—Monday - Martin Luther King Birthday - Academic Holiday
February 21—Wednesday - Tentative ASDA Day - No afternoon classes
March 11-16—Monday through Saturday - Spring Vacation
March 18—Monday - Last day to withdraw from the College of Dentistry and receive any refund (50 percent).*
May 3—Friday - End of academic year for graduating students
May 5—Sunday - University Commencement and College of Dentistry Graduation Program
May 27—Monday - Memorial Day - Academic Holiday
May 31—Friday - End of academic year for continuing students

*Note: fees refers to tuition, student health, student center and student activities fees.

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